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VOL. XIII. NO. 23.

DECEMBER 1, 1885.

PEACE ON EARTH & GOOD-WILL TOWARD MEN



CLEANING
IN

BEE CULTURE

DEVOTED
TO
THE BEEKEEPER

& HOME INTERESTS.

MEDINA, OHIO.

BY

ALFRED ROOT

TERMS, ONE DOLLAR PER YEAR.

ENTERED AT THE POST OFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER.

ADVERTISEMENTS.

We require that every advertiser satisfy us of responsibility and intention to do all that he agrees, and that his goods are really worth the price asked for them.

Rates for Advertisements.

All advertisements will be inserted at the rate of 20 cents per line, Nonpareil space, each insertion; 12 lines of Nonpareil space make 1 inch. Discounts will be made as follows:

On 10 lines and upward, 3 insertions, 5 per cent; 6 insertions, 10 per cent; 9 insertions, 15 per cent; 12 insertions, 20 per cent; 24 insertions, 25 per cent.

On 50 lines (½ column) and upward, 1 insertion, 5 per cent; 3 insertions, 10 per cent; 6 insertions, 15 per cent; 9 insertions, 20 per cent; 12 insertions, 25 per cent; 24 insertions, 33½ per cent.

On 100 lines (whole column) and upward, 1 insertion, 10 per cent; 3 insertions, 15 per cent; 6 insertions, 20 per cent; 9 insertions, 25 per cent; 12 insertions, 33½ per cent; 24 insertions, 40 per cent.

On 200 lines (whole page), 1 insertion, 15 per cent; 3 insertions, 20 per cent; 6 insertions, 25 per cent; 9 insertions, 30 per cent; 12 insertions, 40 per cent; 24 insertions, 50 per cent.

A. I. Root.

CLUBBING LIST.

We will send GLEANINGS—

With the American Bee-Journal, W'y	(\$1.00)	\$1.75
With the Bee-keepers' Magazine,	(1.00)	1.75
With the Bee-keepers' Guide,	(.50)	1.40
With the Canadian Bee Journal, W'y	(1.00)	1.90
With all of the above journals,		4.25

With American Agriculturist,	(\$1.50)	2.25
With American Garden,	(\$1.00)	1.50
With the British Bee-Journal,	(1.40)	2.25
With Prairie Farmer,	(2.00)	2.75
With Rural New-Yorker,	(2.00)	2.90
With Scientific American,	(3.20)	3.50
With Ohio Farmer,	(1.25)	2.00
With Fruit Recorder and Cottage Gard'r,	(.50)	1.40
With U. S. Official Postal Guide,	(1.50)	2.25
With Sunday-School Times, weekly,	(2.00)	2.25

[Above Rates include all Postage in U. S. and Canada.]

HEADQUARTERS FOR

Early Italian & Cyprian Queens.

Imported and home-bred; nuclei and full colonies. For quality and purity, my stock of bees can not be excelled in the United States. I make a specialty of manufacturing the Dunham foundation. Try it. If you wish to purchase Bees or Supplies, send for my new Circular containing directions for introducing queens, remarks on the new races of Bees, etc.

Address
11td **Dr. J. P. H. BROWN, Augusta, Ga.**

FLAT - BOTTOM COMB FOUNDATION.



High side-walls, 4 to 14 square feet to the pound. Circular and samples free.

J. VAN DEUSEN & SONS.

4tfd Sole Manufacturers,
SPROUT BROOK, MONT. CO., N. Y.

SECTIONS.

Western headquarters for bee-men's supplies. Four-piece sections, and hives of every kind, a specialty. Flory's corner-clamps, etc. Orders for sections and clamps filled in a few hours' notice. Send for sample and prices.

22tfd **M. R. MADARY,**
Box 172. Fresno City, Cal.

DADANT'S FOUNDATION FACTORY, Wholesale and retail. See advertisement in another column. 3btd

Cash for Beeswax!

Will pay 20c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 28c per lb., or 35c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says — "We cut with one of your Combined Machines last winter 50 chaff hives with 7 inch cap, 100 honey racks, 540 broad frames, 2,100 honey-boxes and a great deal of other work. This winter we have double the amount of bee hives, etc., to make and we expect to do it all with this Saw. It will do all you say it will."

Catalogue and Price List Free. Address W. F. & JOHN BARNES, 68 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. Root.

5tfd



RUBBER STAMPS

DATING, ADDRESSING, BUSINESS,
LETTER HEADS, ETC.



No. 1.



No. 3.



No. 2.

self and all who do business with you a "world of trouble." I know, you see.

We have those suitable for druggists, grocery-men, hardware dealers, dentists, etc. Send for circular. A. I. Root, Medina, O.

Address only, like No. 1, \$1.50; with business card, like No. 2, \$2.00; with movable months and figures for dating, like No. 3, \$3.00. Full outfit included—pens, ink, box, etc. Sent by mail postpaid. Without ink and pads, 50 cts. less.

Put your stamp on every card, letter, paper, book, or anything else that you may send out by mail or express and you will save your-

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Twelfth Edition Circular and Price List found in May No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture. This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of postage required.

Canada postage on merchandise is limited to 8½ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C.	
	Part First.....	\$ 10
	Bass-wood trees for planting. For prices see Price List.....	
	Balances, spring, for suspended hive (60 lbs.).....	8 00
	Barrels for honey.....	2 50
	" waxed and painted.....	3 50
	Bees, per colony, from \$7 to \$16, for particulars see price list.....	
10	Bee-Hunting box, with printed instructions.....	25
0	Binder, Emerson's, for GLEANINGS.....	50, 60, 75
10	Bloeks, iron, for metal cornered frame making.....	15
	One of the above is given free with every frames, or 1000 corners.....	100
10	Burlap for covering bees, 40 in. wide, per yd.....	10
	Buzz-Saw, foot-power, complete; circular with cuts free on application. Two saws and two gauges included.....	35 00
0	Buzz-Saws, extra, 85c, to \$3.50. See price list. The above are all filed, and set, and mailed any where.....	
60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included.....	5 00
	The same for 7 and 8 in. saws (not mailable).....	7 00
3	Cages for queens, wood and wire cloth, provisioned. See price list.....	10
30	" " per doz.....	1 00
20	Candy for bees, can be fed at any season, per lb.....	15
0	Cards, queen registering, per doz.....	06
	" " per 100.....	40
0	Chaff cushions for wintering (see Nov. No. for 1877).....	30
0	" " without the chaff.....	15
40	Chaff cushion division boards.....	20
2	Cheese cloth, for strainers, per yard.....	10
10	Clasps for transferring, package of 100.....	25
	Climbers for Bee-Hunting.....	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles.....	1 50
	Comb Foundation Machines complete \$35 to 100 00.....	
20	Corners, metal, per 100.....	75
20	" " top only, per 100.....	1 00
15	" " bottom, per 100.....	50
	On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.	
	Corners, Machinery complete for making \$250 00.....	
45	Enameled cloth, the best thing for covering frames. Bees do not bite and seldom propolize it. Per yard, 45 inches wide, 25c. By the piece, (12 yards).....	22
	Extractors, according to size of frame, \$6 50 to 10 00.....	
	" inside and gearing, including honey-gate.....	5 00
	" Hoops to go around the top.....	50
	" " per doz.....	5 00
5	Feeder, Simplicity, (see price list) 1 pint.....	05
7	Feeders, 1 quart, tin, (see April No.).....	10
4	The same, half size.....	05
25	The same, 6 qts, to be used in upper story files for small circular rip saws, new and valuable, 20c; per doz, by express.....	2 00
0	" The same, large size, double above prices.....	
2	" 3 cornered, for cross-cut saws, 10c; doz.....	1 00
5	Frames with simple Rabbet and Clasps.....	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet).....	20
25	Gates for Extractors tinned for soldering.....	50
50	Gearing for Extractor with supporting arm.....	1 25
0	GLEANINGS, Vol's I and II, each.....	75
0	" Vol's IV and V, each.....	1 00
0	" Vol. III, second-hand.....	2 00
0	" first five neatly bound in one.....	5 00
6	" " unbound.....	4 00

	Hives from 50c to \$6 25; for particulars see price list.....	
0	Honey Knives, straight or curved blade.....	1 00
	" " ½ doz.....	5 25
	" " ½ doz by Express.....	5 00
	Labels for honey, from 25 to 50c per 100; for particulars see price list.....	
	Lamp Nursery, for hatching queen cells as built.....	5 00
0	Larvæ, for queen rearing, from June to Sept.....	25
15	Leather for smoker bellows, per side.....	50
0	Lithograph of the Hexagonal Apiary.....	25
0	Magnifying Glass, Pocket.....	50
0	" Double lens, brass on three feet.....	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's.....	1 00
12	Microscope, Compound, in Mahogany box.....	3 00
0	Prepared objects for above, such as bees' wing, sting, eye, foot, &c., each.....	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard.....	10
10	Opera Glasses for Bee-Hunting.....	5 00
18	Paraffine, for waxing barrels, per lb.....	25
0	Photo of House Apiary and improvements.....	25
60	Pump, Fountain, or Swarm Arrestor.....	8 50
0	Queens, 25c to \$6 00. See price list.....	
1	Rabbets, Metal, per foot.....	02
	Salicylic acid, for foul brood, per oz.....	50
10	Saw Set for Circular Saws.....	75
0	Screw Drivers, all metal (and wrench combined) ½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws.....	
0	Scissors, for clipping queen's wings.....	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each.....	05
	Section Honey box, a sample with strip of fdn. and printed instructions.....	05
	Section boxes in the flat by the quantity, \$9 50 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive, see price list.....	10
18	Seed, Alsike Clover, raised near us, per lb.....	25
0	" Catnip, good seed, per oz. 10c; per lb.....	1 00
0	" Chinese Mustard, per oz.....	15
18	" Melilot, or Sweet Clover, per lb.....	35
18	" White Dutch Clover, per lb.....	35
18	" Motherwort, per oz. 20c; per lb.....	2 00
18	" Mignonette, per lb. (25c per oz).....	1 75
	" Simpson Honey Plant, per package.....	05
18	" " per oz.....	10
	" Silver Hull Buckwheat, per lb.....	50
	" " peck, by Express.....	75
18	" Common " per peck.....	50
	" Summer Rape. Sow in June and July, per lb.....	15

A small package of any of the above seeds will be sent for 5 cents.

5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions.....	10
	Shipping Cases for 48 section frames of honey.....	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c.....	
1	Slate tablets to hang on hives.....	01
	Smoker, Quimby's (to Canada 15c extra) 50 & 1.....	75
5	" Doolittle's, to be held in the mouth.....	25
	" Bingham's.....	\$1 00, \$1 60; 2 00
25	" OUR OWN, see illustration in price list.....	75
2	Tacks, tinned, per paper, (two sizes).....	10
5	Thermometers.....	40
0	Veils, Bee, with face of Brussels net, (silk).....	75
	The same, all of grenadine (almost as good).....	50
	Veils, material for, Grenadine, much stronger than tarlatan, 21 inches in width, per yard.....	20
	Brussels Net, for face of veil, 20 inches in width, per yard.....	1 50
	Wax Extractor.....	3 50
	Copper bottomed boiler for above.....	1 50
5	Wire cloth, for Extractors, tinned, per square foot.....	10
2	Wire cloth, for queen cages.....	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively.....	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot.....	05

All goods delivered on board the cars here at prices named. A. I. ROOT, Medina, Ohio.

ADVERTISEMENTS.

Advertisements will be received at the rate of 20 cents per line, Nonpareil space, each insertion, cash in advance; and we require that every advertiser satisfies us of responsibility and intention to do all that he agrees, and that his goods are really worth the price asked for them.

VICK'S FLORAL GUIDE

A beautiful work of 100 Pages, One Colored Flower Plate, and 300 Illustrations, with Descriptions of the best Flowers and Vegetables, and how to grow them. All for a Five Cent Stamp. In English or German.

The Flower and Vegetable Garden, 175 Pages, Six Colored Plates, and many hundred Engravings. For 50 cents in paper covers; \$1.00 in elegant cloth. In German or English.

Vick's Illustrated Monthly Magazine—32 Pages, a Colored Plate in every number and many fine Engravings. Price \$1.25 a year; Five Copies for \$5.00.

Vick's Seeds are the best in the world. Send Five Cent Stamp for a FLORAL GUIDE, containing List and Prices, and plenty of information. Address 12-3 JAMES VICK, Rochester, N. Y.

Early Queens.

J. P. H. BROWN, Augusta, Georgia, Importer and breeder of Italian queens, and dealer in Bee-Keepers' supplies. Queens bred a month earlier than in the North. Low express rates. Packages of five or more queens sent free of express charges to any part of the United States except California and Oregon. 11tf

DAVENPORT GLUCOSE MANUFACTURING CO.

MANUFACTURERS OF SUPERIOR DOUBLE
REFINED GRAPE AND MALT SUGAR,
CRYSTAL GLUCOSE SYRUP.

Superior Double Refined Grape Sugar for feeding bees, at 3½¢ per lb. in barrels of 375 lbs., and 4¢ in boxes of 50 or 110 lbs. Crystal Glucose Syrup 5¢ per lb. by the barrel. Samples of the Grape Sugar will be sent prepaid, by Express, on receipt of 10 cents. 11tf

LOUIS P. BEST, Sup't, Davenport, Iowa.



\$1.50 per YEAR; CLUBS of 5 or More \$1.00.

Send Ten Cents for a Sample Copy of

The American Bee Journal

The Oldest, Largest and Best Bee Paper.

THOMAS G. NEWMAN & SON, CHICAGO.

Cash for Beeswax!

Will pay 30¢ per lb. for any quantity of nice, clean wax, delivered at our R. R. station.

A. I. ROOT, Medina, O.

Before Purchasing

Supplies for your Apiary, send a postal card with your name and (if you will do us the kindness) those of bee-keeping neighbors, for our Illustrated Circular of Apiarian Supplies, and sample Sectional Box and Comb Foundation, made on the **Danham Foundation Machine**, which is the latest improvement in that line. We wish to place these samples before **Every Reader** of this Magazine, and hence offer them **Free**. Just send your name at once.

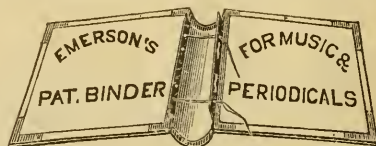
N. B.—We have secured the general agency of the above machine. Special attention given to rearing Italian Queens and Bees. The highest price paid for Beeswax.

J. C. & H. P. SAYLES,

Hartford, Wis.

NELLIS' FLORAL INSTRUCTOR.

An elegant illustrated quarterly devoted to gardening in all its branches, containing a complete list of Seeds, Plants, Bulbs &c. at reduced prices, also much information. 10¢. per year; sample copy and 2 p'k'ts of bee seed for 3¢. Seeds for bee-keepers a specialty. A. C. Nellis, Canajoharie, N. Y.



You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I must have last month's Journal and it is no where to be found." Put each No. in the Emerson Binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen even though it were months ago.

Binders for GLEANINGS (will hold them for two years), gilt lettered, free by mail for 50, 60, and 75¢, according to quality. For table of prices of Binders for any Periodical, see Oct. No., Vol. II. Send in your orders.

A. I. ROOT, Medina, Ohio.

Cheap! Cheaper! Cheapest!

Having built a shop and put in new machinery, I am prepared to furnish Bee Hives, Section Boxes, Frames, &c., &c., as cheap as the cheapest.

Section Boxes, 4½x4½x2, per M., \$3.00, and everything else at bottom prices. For further particulars send for Circular.

F. A. SALISBURY.

E2-1d

Geddes, Onondaga Co., N. Y.

The A B C of BEE CULTURE

Part First, will tell you all about the latest improvements in securing and Marketing Honey, the new 1 lb. Section Honey Boxes, making Artificial Honey Comb, Candy for Bees, Bee Hunting, Artificial Swarming, Bee Moth, &c., &c.

Part Second, tells All about Hive Making, Diseases of Bees, Drones, How to Make an Extractor, Extracted Honey, Feeding and Feeders, Foul Brood, etc. etc.

Part Third, tells all about Honey Comb, Honey Dew, Hybrids, Italianizing, King Birds, The Locust Tree, Moving Bees, The Lamp Nursery, Mignonette, Milkweed, Motherwort, Mustard, Nucleus, Pollen, Propolis, and Queens.

All are Profusely Illustrated with Engravings.

Nothing Patented. Either one will be mailed for 25¢; ¼ doz., \$1.25; 1 doz., \$2.25; 100, by express, \$15.00.

The three parts bound in one, mailed for 60¢. One doz. \$6.00; 100, by express, \$35.00.

A. I. ROOT, Medina, Ohio.

CLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VII.

JANUARY 1, 1879.

No. 1.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.

Established in 1873.

TERMS: \$1.00 Per Annum in Advance; 3 Copies for \$2.50; 5 for \$3.75; 10 or more, 60c. each. Single Number, 10c.

SCRAPS AND SKETCHES. NO. 1.

NOW, my friends, I wish each one of you to imagine that you are a neighbor of mine, and that you have just driven over to make me a visit and have a real good bee chat; and I, in return, will imagine that I have put your horse, Clip, in the barn, given him a nice "lunch" of Alsike clover hay, and invited you into the shop where I am making hives.

Please don't think you have been slighted, and feel offended, because I asked you into the shop instead of the house, for my shop is neat, clean, and cosy. I will confess, however, that when I first commenced work in it things did get scattered around just a little, and sometimes I was obliged to hunt for a tool when I wished to use it; but increase of business compelled me to be more orderly and systematic, to have a place for everything and everything in its place, and to keep my floor, workbench, &c., all brushed up "slick."

Now, my friend, we will imagine that you are "dangling" your feet from the top of my workbench, while I am putting together frames and telling you about

THE HIVE I AM USING.

I used the American hive one season, and that convinced me that, although expensive and complicated, it was too limited in capacity to suit any go-ahead bee-keeper. And right here, please let me digress long enough to say that, although I am trying very hard to go ahead, and not be outstripped by my brother bee-keepers, I have no ambition to own a large number of bees; the height of my aspirations is to keep what bees I do have in the best possible manner. I try to keep my apiary so neat and tidy that I should not be ashamed of it if—if Novice himself should make me a visit. And now that my apiary is fully started, I try to make it self-sustaining; if I need any improvements the bees have to buy them, and—and—I am making money out of my bees. There, I think I have "bragged" enough so that I can stick to the hive question and not dodge off again.

When the American hive is full, you have either got to divide your bees or let them swarm; you can not build them up into a mammoth colony, and get a large yield of honey. There is little chance to use the extractor, as the brood occupies, or at least should occupy, nearly all of the frames. Boxes can be used only on top of the frames.

I was sulted with the American frame, and I did not wish to throw away the hives I had made, therefore, the easiest way out of my troubles seemed to be to use a Simplicity hive holding the American frame, and one year's experience with such a hive seems to prove that it is the best. As some of my customers took a fancy to the American hive, as I myself once did, there was little trouble in disposing of what few I had; some were sold empty, and some with bees in them.

My friend, perhaps you think I am rather harsh in my criticisms on the American hive; I may be harsh, but if you should give it a fair trial, I think you would be harsher.

W. Z. HUTCHINSON.

Rogersville, Michigan.

If I understand you, friend H., it is not

the hive which you criticise, so much as the principle on which it was planned originally. It has been very much modified and changed since it was first given to the public. We frequently make Simplicity hives, with frames 1 foot square, and call them Am. hives, but only on account of the size of the frame. The only objection I have to the Am. frames is that they are too deep for a two-story hive. Friend Bingham uses and succeeds well with a frame even shallower than the Langstroth. This works nicely in a hive as tall as even 3 stories.

OUR FRIEND SCIENTIFIC, ON A VISIT.

WE have been on a visit, my wife and I. On the 24th of Oct., after seeing that our bees were all in good order, honey all shipped off (except enough to supply the neighbors), and the turkeys, geese, chickens, and cattle, all in good hands, we set our faces toward the east, and the far famed land of wooden nutmegs.

Now we do not propose to tell you of our visit with friends, or of all the machinery we saw, but of the few facts we observed in our journey, upon honey matters. We halted in Albany a few days, and found honey quite plentiful, and for sale at from 10 to 25 cts. Very good comb honey was selling, in some stores, for 14c., but was of dark color.

From Albany to Southington, Conn., we occasionally saw bee hives, but they were few and far between, and all of the box hive pattern. In S., we found no bee-keepers, and as a consequence, their market was supplied with California honey in Harbison frames, and selling at 25c. S. is a small manufacturing town, and ought to consume much extracted honey, but we saw none on sale. A day spent in Hartford also revealed honey, both local and California (so called), for sale for 25c. All honey put up in Harbison frames is from California, you know. Some people imagine they can taste honey from the orange blossoms. This is a very beautiful thing for groccymen to expiate upon, and their customers are sometimes green enough to swallow their stories.

We must mention our visit to Colt's Armory, or manufactory of revolvers and gatlins guns. This whole manufactory is kept as nice as an apiary, or shall I say bee hive? Cleanliness, precision, intelligent workmen, and splendid engines were prominent points. All were hard at work, supplying mankind with weapons of defence, or shall I say making stingers for mankind?

Middletown was our next stopping place. This is an old city on the Conn. River. We found there many old fashioned houses, with large chimneys and capacious fire places, and the regular old New England garret, with relics of a hundred years ago.

This place is also dependent on other sources for its honey supply, and prices range from 20 to 30c. We were pleased to meet here Mr. J. L. Davis, who has a few swarms and is well posted upon their management. Mr. D. has invented a very ingenious cast iron apparatus for holding the frames at fixed

distances apart in the hive, but we who handle hundreds of frames in a day, would think them quite a bother. Mrs. Davis is somewhat apprehensive in regard to the increase of the apiary; she reasons that if she gets stung once a day from a dozen hives, she will average 8 or 10 stings per day from a hundred swarms.

Upon our return from Middletown, we made a short halt in Springfield, Mass., and found the honey market about the same as in other quarters. All dealers complain of dull sales, in this line of their business. We were impressed with the variety of prices at which honey was sold; but upon inquiring about butter, we found as much of a variety in that. Though that is a standard article, we found it ranging all the way from 18 and 20 cts., at our home, to 25 and 36 cts., in Conn. At all points, a nice article, put up in good shape, commanded the best price, and there will be but little white honey, in single combs, kept over until spring.

It seems the Geow brothers have made a fortune in the honey trade in the N. E. states, and the field is still open for enterprising and honest dealers to work up a splendid honey trade in those states. Connecticut has not, as yet, developed such honey resources as York State, and they do not raise enough for the home demand. Grocerymen say that if they could only sell as much honey as they did a few years ago, when times were flush, they would purchase quantities of honey. Where hundreds of pounds were then sold to employees in manufactories, now but a few pounds are sold. Still, our honey production is greater than ever, and it goes somewhere; it must be spread out thinner, and goes over a greater territory. Should flush times come again and to stay, as some declare, our honey trade would spring up again into still greater proportions.

Upon our return to Troy, we found our friends talking of a man named Duffy, who shipped several thousand lbs. of comb honey to N. Y., by boat, and accompanied it; but after a day's trial to sell it, he got disgusted and returned it all to Troy, and could not sell it at any price. I did not learn the style of package. Will Mr. Duffy rise and explain as to the truth of the reports about him?

Excuse the length of this epistle. It leaves us at home again, trying to profit from our excursion.

Hartford, N. Y., Dec. 3d, '78. J. H. MARTIN.

A COUNTRY PARSON'S BEE-KEEPING.

GOOD morning, friend Root. I thought I would drop in and pay my subscription to GLEANINGS for another year. I find it so valuable I can't think of doing without it. And, by the way, I will also add that during the year, I bought an Emerson binder, and now I could scarcely be induced to do without it. I have a thin board, size $9\frac{1}{2} \times 6\frac{1}{2}$ inches, and as soon as I receive a number, I trim it neatly to these dimensions, and having placed it in the binder, I "can sit down, happy," with no thought of getting the number soiled, torn, or lost. By the way, friend Root, that advertisement needs "reconstruction"; you can't put 4 years of GLEANINGS (latest vols.) in one of those binders at once. You see GLEANINGS has outgrown its "baby clothes", and of course feels *bigger* now than formerly; 338 pages last year, 424 this. That looks healthy. Glad to see it, I'm sure.

I haven't received my imported queen yet, because, you see, I haven't ordered her. Money has been so close, and you tell us not to go in debt, which is very good advice, certainly, and accords with higher authority, which says "Owe no man any thing" (Rom. 13, 8.); but I must confess, it is rather hard to wait when there is more than twenty times the amount needed coming to us, and has been due several months. But it *will* come and so will the queen; and so, I bide my time.

At spare moments, I have been making some chaff hives, *a la* Clark, "with variations," and I don't feel ashamed of them either. I have made them two stories high and of nice planed pine boards. The corners I made of $\frac{3}{4}$ lumber, cutting pieces of the proper length, $2\frac{1}{4}$ by $1\frac{1}{2}$ respectively, and nailed them to look very similar to the corners made *a la* Root, which I couldn't make if I'd try, because I haven't the machinery. The roof, I make of clean pine boards, $\frac{3}{4}$ in. thick, and extending over $1\frac{1}{4}$ inches. Around and under this extension, I nail strips 1 in. thick by $1\frac{1}{4}$ wide, cutting places to fit the corners. It makes a good roof and looks very

well, but not so well as yours, nor is it quite so handy. These hives, nicely painted, not counting my labor, will cost me less than a dollar apiece.

While I am here, I must show you a picture of the



SIMPLICITY COMB HOLDER.

It answers the purpose nicely, is very easy to make, and costs almost nothing. When I finished the invention, I imagined friend Root saying, "Well now, that holder can be made and finished for about 10 cents, perhaps 9¢, and the work ought to be well done at that price."

HOW TO MAKE IT.

Take a piece of $\frac{3}{4}$ lumber, size $20 \times 9\frac{1}{2}$ inches; also cut two pieces, $9\frac{1}{2} \times 2\frac{1}{2}$, and $\frac{3}{4}$ inches thick; saw a rabbet $\frac{1}{4} \times \frac{3}{8}$ inches, in one end of each, in which tack a tin rabbit $\frac{1}{4}$ in. high; nail these ends to the side board; also nail on a thin bottom board $20 \times 2\frac{1}{2}$ inches; then fasten on two pieces of hoop iron and bend to hang on the Simplicity hive; finish by giving it a good coat of paint, and you have one of the cheapest and handiest things about the apiary. Allow me also to add that *now* is the time to make this article to have it ready when wanted.

Don't you think friend Williams got his Saul (I) a little mixed in Nov. GLEANINGS?

Now, friend Root, whenever you go out "rusticating," I would be glad to have you stop with the Country Parson. Will treat you the best we know how. Good day, L. S. JONES.

New Philadelphia, Ohio, Dec. 5, 1878.

I stand convicted about the binders, and Saul of Tarsus too, friend J.

DEPOSITORY OF

Blasted Hopes.

Or Letters from Those Who Have Made Bee Culture a Failure.

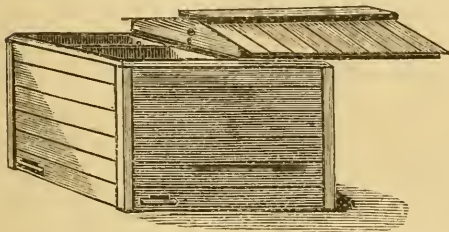
I HAD 30 stands of common bees transferred to Langstroth hives, the last of May, and have lost half of them. The job was badly done. Many of them were evidently without queens or brood. Only yesterday, it being warm, one small colony left its hive and went into another. On examination, I found honey, some capped over, but no brood or eggs, and there never has been any, which proves that they are the same bees put into the hive 6 months before; rather contrary to what I was told as a fact, that the life of a worker bee is about 45 days. I hope to be better informed.

Shelby Co., Tenn., Dec. 12, '78. A. DONELSON.

Now, friend D., it rather reflects on you, as a bee-keeper, if you allowed a colony to stand 6 months, without even discovering that they had no queen, eggs, or brood. I should expect we would all go into Blasted Hopes, pretty speedily, if we did it in that way. The transferring was certainly very badly done, if you lost even one out of 30 transferred in May. I think, my friend, you are hasty in saying the books teach that worker bees live only 45 days. Do they not say about 45 days on an average, during the working season? The brood in the hive would not all hatch under 21 days, and the bees, being without a queen, would not work as they usually do. During the winter time, bees live on an average nearly 6 months, and the bees in your queenless hives would perhaps live nearly as long.

TENEMENT HIVES.

I SAW in the Dec. No. of GLEANINGS an article from D. C. Underhill, of Seneca, Ill., in favor of the tenement hive, which you seem to think (the cover being whole) will be an ungainly thing to handle. Now I have made one of a dry goods box, which I think does away with your objection. The cover is very light, it being made of thin stuff; the gables and side strips are of $\frac{3}{8}$ in. stuff; the roof is made of $\frac{3}{8}$ x 6 in. lap ceiling; the joints are well painted before they are nailed to the ridge board, which is 1x3 in. and dressed as you do ridge boards of the chaff hive. There is a 2 in. hole in each gable covered with wire cloth for ventilation. You want two wire hooks, and eyes to match (one at each end; screw the eye that is attached to the hook into the centre of the gable, and the other eye into the centre board, but one side of the centre far enough to give room to lift out the frames. Then shove the cover over and hook it fast. There is no lifting or tumbling the cover, and nothing in the way of the flight of the bees. The flight holes are as near the corners as I can get them, and are $\frac{1}{2}$ x 8 in. in the clear. You will see by a rough draft which I enclose, that there is plenty of room to stand at one side of the flight holes and work with your bees.



THOMSON'S TENEMENT HIVE.

For the sake of economy of material used, the hives should be nearly square. C. THOMSON.
Brighton, Mich., Dec. 10, 1878.

THE TENEMENT HIVE.

WHEN I wrote the article you published in the Dec. No. of GLEANINGS, on the above subject, I had no doubt that you would accept my offer of a skeleton of one, and thus get a correct knowledge of its construction. If you had done so, you would not have said what you did about the hive in your following comments. The bee entrances are not on all sides as you seem to have supposed, but occupy two sides, leaving the other two free for manipulations. The cover weighs from 14 to 21 lbs., according to the thickness of the lumber. So you see a 10 year old boy or girl can lift it off, if it ever becomes necessary. When I wish to examine a hive, I slide the cover to the other side, where it forms a convenient place to set the smoker, and any other tools I have need of; also to lay the cushion and sheet when taken out of the hive. When I am through, the sheet and cushion are before me to be returned to their places, instead of being on the ground or a neighboring hive. I then slide the cover back to its place.

I received a note of enquiry from J. B. Hains, of Bedford, O., who had some curiosity to know what sort of a cover I was making, that took two men to lift it off, and kindly suggested a remedy; but as I was building no such cover, the remedy was not needed.

Any pencil sketch I could make would give you no correct knowledge how the tenement is built, or how it is used in practice. When I stack them up among discarded inventions, I will let you know, and not do as Shaw appears to have done, say nothing about their failure. I think our failures are as important a part of our experience as our successful ventures, and quite as numerous.

The only mention I have seen made in print before, of the principle of the tenement hive, is in the Nov. No., 1874, page 167, in an article entitled "A Couple of Hours in a German Apiary." The writer says, "I may here mention that most of his hives are more or less fixtures; that is to say, there are 3 or 4 stocks in one large hive, separated from each other by dividing boards, an arrangement which he

finds a great saving of trouble to himself, and equally good for the bees."

My attention was not fixed on this however, until after I had planned the tenement.

Seneca, Ill., Dec. 19, '78. D. C. UNDERHILL.

I humbly beg pardon, friend U.: it was out of what I considered a kindness to you and others, that I suggested a sketch, rather than a hive. I did not suppose your cover was made heavier than you have mentioned, but I thought, and can but think still, that a cover large enough to compass 4 hives, would be unwieldy. If my neighbor Shaw alone, should give me an account of the kinds of hives he has invented and discarded, it would fill GLEANINGS for several months, to the exclusion of every thing else. Your letter has called forth an amount of correspondence, accompanied by excellent sketches of hives, that is far beyond anything we can publish. I fear, judging from the experiments of years past, that they will all soon be laid aside and forgotten. Shall we not wait a little before giving them too much space, to the exclusion of other matter?

Send the hive along, and if you desire, I will have our engraver make a cut of it.

CHAFF HIVES.

I BELIEVE we can all agree in giving friend Townley the credit of persistently bringing before the public, the matter of using chaff for winter packing, even if we do not give him full credit for *discovering* the virtues of chaff for this purpose. As a consequence, he has many letters to answer on the subject, and asks to answer them through GLEANINGS, which we shall be very happy to have him do. Below are two of them.

Mr. Townley: I have a few hives of bees which are packed in chaff, and I have found it a great deal of work.

I understand that you are using the chaff hive, and I would like to have your opinion about it.

Would you advise any one to make a chaff hive in preference to any other? Can you get more comb honey from a chaff hive, where it is protected from the changes of the weather, than you can from a hive made of inch lumber? Is the upper story surrounded with chaff, the same as the lower story? If you can answer these questions for me, you will oblige me very much. GEO. H. DENMAN.

Pittsford, Mich., Nov. 12, '78.

P. S. What does it cost you in money to get up a chaff hive?

J. H. Townley Esq.:—I hope you will not be offended, for I would like a few questions answered, and as you have had a pretty good experience in the business, I take the liberty of writing you.

I am just starting in the bee business, and before I invest in any new hives, I want to be posted on the best hive. I have read a good bit about different kinds of hives, and I am almost persuaded that the chaff hive as made by A. I. Root is the best. I am pretty well satisfied that that sized frame is best.

What hive would you advise me to use? Is the chaff hive better than the simplicity for summer use, when both are shaded? Is sawdust better than chaff? Ought either to be stamped tight or just thrown in loose?

By answering the above and anything else which you deem advisable, you will greatly oblige.

Tyrone, Pa., Nov. 18, '78. J. B. McCULLOUGH.

Friend T replies as follows.

Friend Root:—By permitting me to answer through GLEANINGS the following inquiries, from numerous correspondents, you will confer a favor that will be esteemed and reciprocated in any way you may suggest.

1st. What hive would you advise me to adopt?

Thirteen years ago, I commenced using frames the same length as the simplicity frame, and two inches deeper. Since then, I have tried the Thomas, Gallup, Conklin, Hazen, Simplicity, and other sized frames, and rejected all but the Simplicity; and were I to commence again now, it would be with the Simplicity frame, with the top bar made different from friend Root's, ten frames in a hive.

2d. Is the chaff hive better than the Simplicity when both are shaded?

My experience during the past summer, in my own apiary, of 38 chaff hives, and over 40 not packed, is very much in favor of the chaff packing. Colonies in the chaff hives have swarmed the least and stored the most section honey.

3d. Would you advise one to make chaff hives in preference to any other?

Yes; especially, if bees are to be wintered on their summer stands.

4th. Is sawdust better than chaff?

No; use no sawdust in packing. It not only packs too close, but it absorbs and retains moisture.

5th. Is the upper story surrounded with chaff?

Yes.

6th. Ought either to be stamped tight, or thrown in loose?

Press the chaff down tight with the hand, close enough so that it will not settle and leave an open space at the top.

7th. What does it cost you in money to get up a chaff hive?

I can not give an exact answer, but it is not far from \$1.25. This is for the lumber, dressed, ready to cut into suitable lengths, shingles, nails, and paint, but does not include frames and chaff cushions.

8th. How do you keep ants out of the chaff?

I have never been troubled with them. A friend tells me that salt sprinkled occasionally on the ground around the hives will effectually rid an apiary of these scavengers.

9th. I have been quite successful wintering bees in my cellar; would you advise me to abandon it for chaff packing?

No; you can make a few chaff hives and if, after giving them a trial for summer and winter use, you think it will pay, you can soon change to such hives.

10th. Do you use metal corners?

Yes; I make no frames now without them. It is true, they slide easily on the rabbet, but that is just what suits me; no carrying a *croubar* around with which to pry frames loose.

J. H. TOWNLEY.
Tompkins, Mich., Dec. 1878.

MAILING QUEENS.

UNTIL 1868, all the queens sent out by my son

and myself went to our customers by express. In the summer of that year we mailed some, by using a pretty large sponge, well wrapped up to prevent a too rapid evaporation of the water which the bees used to moisten their candy. Those which had only a short distance to travel fared well; but if the journey was long, the sponge, in spite of all our precautions, dried out, and the bees died. While we made a failure in mailing queens, others—among whom I would specially notice Mr. Alley, of Wenham, Mass.—were quite successful, and until the exclusion of bees from the mails, the great majority of those distributed for the last few years were sent by mail.

It seems very unreasonable to many, that such an important interest can no longer use the mails, which reach every man's home, but must rely upon the express companies, which, to say nothing of their heavier charges, cannot reach many who desire to purchase queens. I do not think that our bee-keepers have given due weight to the objections against sending them, put up in the usual way, through the mails. All will agree that packages which contain honey that may leak out, should be refused; but what valid objection can lie against such boxes as have been used for some years past? The story of bees escaping from them, and stinging the officials, is received with great incredulity; but it may happen with wire cloth so weak, and often so insecurely fastened, that it can be punched thro' or displaced by the rough usage to which the mail bags are often subjected. Taking all things into account, the ruling which excludes bees, put up as

they have been put up, from the mails, seems to me to be right.

I will give two plans, by either of which I think that they may be safely sent through the mails: Let a hole be bored lengthwise, through a piece of a large corn cob. In one side, let the candy be poured in a liquid state, and before it hardens, let the hole be tightly stopped with a cork or piece of cob. After putting in the bees let the other hole be closed with a stopper, in which is fastened a vial of water, with a small slot cut (on Mr. Root's plan) in the cork which closes the vial. Let a thin piece of lampwick be wrapped around a wire reaching to the bottom of the vial, the wick coming out even with the cork, so that whatever may be the position of the cob in the mail bag, the bees can always get water from the end of the wick. This last idea comes from my neighbor, Mr. D. A. McCord, who is fertile in suggesting and executing nice devices. Before the bees are put in, some ventilating slots must be made by a buzz saw. Such a package will be cheap, light, warm, and so strong that it could not be broken, unless by design.

My second plan is to use 2 boxes of the usual kind. Instead of wire cloth, let suitable ventilating slots be made in the sides of these boxes. After introducing the candy, bottle of water, and bees, let the boxes be firmly fastened together with annealed wire, so as to enclose the bees in the double hollow. Enough bees, candy, and water, to endure a long journey, can be sent in this way, in quite cold weather. Cork boxes, made somewhat after the fashion of the old cork inkstands, would answer perfectly, as I think, for sending bees from Italy, by mail or express, to all parts of our country.

Might we not reasonably hope from our Post Master General's well known regard for the public good, that he would allow bees, put up in such packages, to be sent through the mails? If they can be sent safely, no doubt he would be pleased, while helping an important interest, to add, at the same time, a nice little sum to the revenues of the postal service.

Before closing this article, I will make a few remarks on the proper way of giving credit to those who make new inventions, or valuable suggestions. It often happens, after such things are given to the public, that rival claims are put in for them, and sometimes it is no easy matter for any one to decide between such claims. It should, however, be borne in mind that it is a well settled principle of law, that no patent can issue to one who has kept his invention a secret so long as not to be able to prove that he has used due care and diligence to give the public the benefit of it; but, on the contrary, must issue, on application, to the party from whom the public actually gets the benefit of its knowledge and use. On the same principle, it is not necessarily the first discoverer of any valuable principle, to whom the credit should properly be given, but to the one who, being an *original* discoverer even if not the *first*, actually gives the public the knowledge of it. I will illustrate these principles, by some facts.

Long before Mr. Root used his bottle queen cage, I had fully tested the feasibility of keeping bees for a long time, in a cage, with candy only for their food, which they softened with water from a sponge. I carried them about for days on my person, laid them on a shelf in the house, etc., merely wetting the sponge occasionally. My failure in sending out queens, however, showed that I had not, like Mr. Root, discovered the right way of securing a continuous supply of moisture. But more than this, I even went so far as to devise a bottle feeder for honey, but not for water, to be pivoted and weighted in the transport box, so that the feeding side of the bottle would always present the honey to the bees, on the same principle that toys are weighted to assume any desired position. That plan is fully described in my private journals, under the date of its invention, with the confident declaration, that by it bees could be safely sent to any part of the world. But what benefit did the public get from all these minutiae? NONE AT ALL. To A. I. Root, to whose inventions bee-keepers are so much indebted, to him first and last, belongs the full credit not only of making this thing a practical success, but of giving the knowledge of it to the public. By what he *did* and *published*, the world first learned how easy a thing it is to send queens anywhere, and at almost any season. "To the law and to the testimony" of public use and published documents, must all such matters be submitted.

L. L. LANGSTROTH.

Oxford, O., Dec. 18, 1878.

Honey Column.

Under this head, will be inserted free of charge, the names of all those having honey to sell, as well as those wanting to buy. Please mention how much, what kind, and prices, as far as possible. The prices quoted in our cities for honey are, at present, too low, to make it worth while to publish them. As a general thing, I would not advise you to send your honey away, to be sold on commission. If near home, where you can look after it, it is often a very good way. By all means, develop your home market. For 25cts., we can furnish little boards to hang up in your doorway, with the words "Honey for Sale" neatly painted. If wanted by mail, 10c. extra for postage. Boards saying "Bees and Queens for Sale," same price.

I HAVE 250 gal. of extracted honey which I wish to sell to the highest bidder, and must sell to some one soon. Mrs. J. T. CAPEHART.
Memphis, Tenn., Nov. 29, '78. No. 355 2d. St.

I have about 2 barrels or 90 gallons of extracted honey taken in the last part of June, nice and clear, light colored, all grained. Would take 10c. per lb. and deliver at rail road, barrels, worth \$2.00, not included. JAS. GREEN.
Freeport, Harrison Co., O., Dec. 9, 1878.

The "Smilery."

This department was suggested by one of the clerks, as an opposition to the "Growlery." I think I shall venture to give names in full here.

I RECEIVED goods on the 3d. inst., as per order in the best possible condition, showing the economy of an experienced hand in packing, but sparing no pains nor expense to secure their safety. Please accept thanks for the same and oblige. J. H. WYCKOFF.
Simcoe, Ont., Can., Dec. 7, '78.

You ought to have been appraised, last Monday, of the receipt of the photo, but I was too ill to even say "thank you"; they tell me, I have the consumption. Really, my dear sir, you do not look like a man disposed to "slam things," rather like one effectual in *persuasion*. Unless it flatters you immensely, your wife ought to be proud of—Blue Eyes? (:) she is a noble looking child.

"Guenon" came last night. I expected a paper covered pamphlet; but this is quite large and superbly bound, printed on the best of paper, cream tinted and suggestive. It seems to me, *perfect* in "get up" and composition. You surely do your readers a kindness, in calling attention to works of such practical value.

I cannot express my gratitude for each and all of your favors. Hoping that your success may be perfect and your life happy, I remain

Resp. Yours, MRS. JENNIE LEETE.

West Amboy, Oswego Co., N. Y.

Is it true, Friend Jennie, that you, who have so many times seemed the most fitting one for the Smilery, are a consumptive? Is it because you are a Christian, and have no fear of death, that you are thus cheerful even when in poor health? I trust so, and that we may all learn a lesson from you.

It was a hard cross to confess about that temper of mine, and I shudder even now, when I look back and think of the time when I feared neither God nor anything else. I have been censured some for making such a public confession of my faults, and some have so far overlooked the moral I wished to convey, as to think I might do the same thing now. I wrote it, because I knew it would carry the light of a Savior's love to many a heart, as it has done in the case mentioned in the following letter.

I have taken GLEANINGS now one year, and have learned a great deal from it. I commenced with 4 swarms of bees last spring, and have increased to 10 and from 9 of them took 400 lbs of honey in the cap. My wife did the hiving, I being away from home to work.

GLEANINGS does me a great deal of good, not alone in bee matters, but by the last pages in the book. May God bless you in the work you have begun. I used to swear a great deal, every time I got stung. I don't think I hurt the bees, but my wife used to cry, and beg of me not to swear so; till finally, about 3 weeks ago, I made up my mind to lead a different life, God being my help. Give me an interest in your prayers, Brother Root, and don't drop the last pages of the paper for something else. Keep right on, and God will be with you in the year to come. C. SEVENER.

Geneseville, Mich., Dec. 19th, 1878.

Humbugs & Swindles,

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

MRS. COTTON continues to be sole candidate of this department. Mr. Wm. Clement, of Malcoln, Iowa, sends a letter too long for publication, detailing how he sent her a swarm of bees for her hive and system. After some correspondence, he received an L. hive, made of hemlock boards, too rough to be used even for a hen's nest.

As for the new system for getting \$50.00 from a hive in one season, he wrote in vain, and never received so much as a scrap of paper in regard to it. As he paid about \$3. express on the hive, he was worse off than a neighbor of his, Levi Parker, of Reading, Iowa, who sent her \$10., and never received so much as a word of reply in answer to his many letters.

READERS, BEWARE OF MRS. COTTON.

An advertisement of practical information with reference to Bee-Keeping, by Mrs. Lizzie E. Cotton, West Gorham, Me., lately appeared in our columns. A copy of "GLEANINGS IN BEE CULTURE," a monthly, published by A. I. Root, Medina, O., is now sent us, stating that this Mrs. Cotton has the disagreeable habit of making no return for money sent her, though she often makes fair promises. As she apparently has the equally disagreeable habit of not paying her advertising bills, we fear that the imputation of our contemporary is not without foundation. Newspaper publishers should make a note of this and shun her. We have no doubt but that she is trusted simply because she represents herself a woman and writes so handsomely and feminine like when sending her advertisements to publishers, but in answer to bills for advertising, her hand writing looks remarkably masculine.—*Farm and Fireside*.

HONEY SCALES.

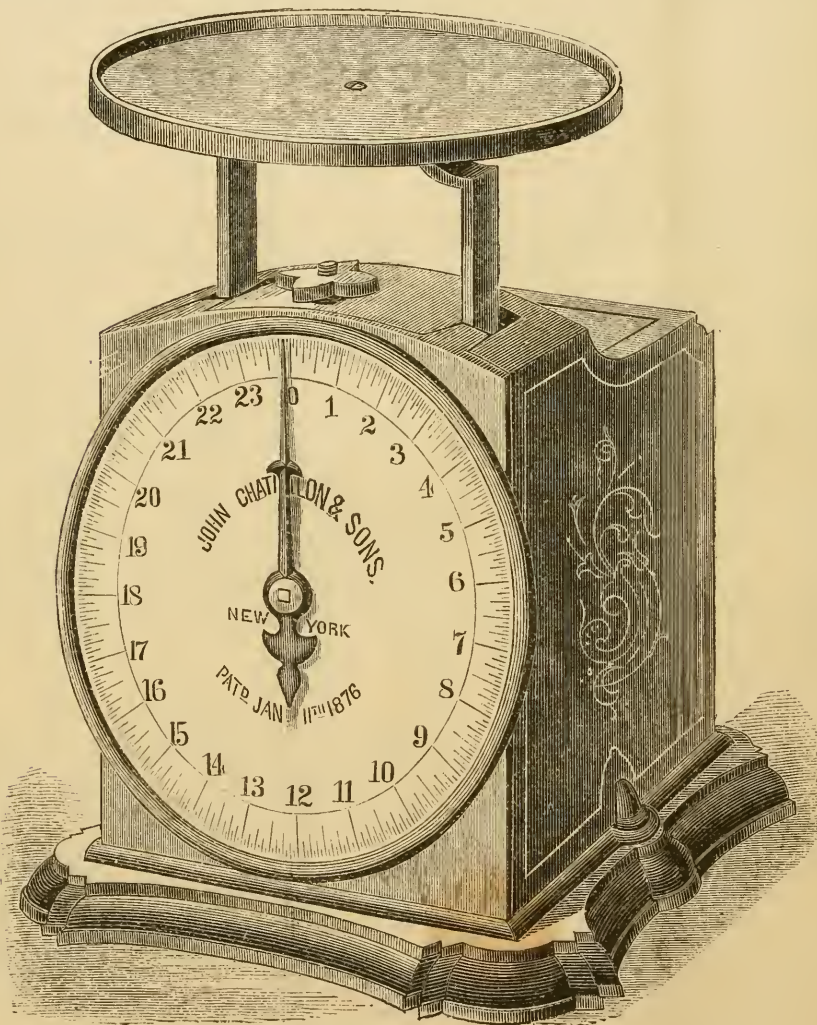
AFTER hunting up every thing in the shape of scales, that will answer at all for weighing honey, I have decided that nothing will answer the purpose, short of the scale given above. The only objection is the price. They ordinarily sell for from \$4 to \$5.00; but I have been able to make an arrangement with the manufacturers, whereby I can offer them at \$3.00. This will weigh a half oz., without trouble; but with cheaper scales, it is difficult to weigh nearer than $\frac{1}{4}$ lb., and that is too much of a variation,

in retailing honey. The machine, besides being strong and accurate, is a very handsome piece of furniture, as you see. The nut under the platform takes off the tare. It is as accurate as a balance scale, and very much handier.

The scale shown in the engraving is represented as weighing 24 lbs.; those we offer for \$3.00 only weigh up to 12 lbs., as this does very well for retailing honey. A 24 lb. scale

like the one in the cut, I can furnish for \$3.50. I presume a great demand for them, would reduce the price quite materially.

Those who are studying on scales, should bear in mind the following points. To make a scale that will weigh ounces, you must have a circular dial, for it would string out very long, to have even 12 lbs. graduated by oz., unless we had the divisions very close together, and then old people could not read



THE "FAVORITE" FAMILY SCALE.

them. A nice dial with a nicely working hand are rather expensive. Again, if you have the platform work freely up and down, which it must do to record oz. accurately, you must have a broad base to contain the necessary levers. The case to contain these levers must be of cast iron, for wood or tin would not be sufficiently permanent to secure accuracy. Scales can be made like those mentioned by friend Kellogg last month, for perhaps a dollar, if you are satis-

fied with something weighing no nearer than $\frac{1}{4}$ lb.

In purchasing bees, and in preparing bees for winter, a scale is very handy; for this work we want one that will weigh 100 lbs. or more, and if it comes within a lb., it will do very well. For this purpose I would recommend the German Ice Scale, which weighs from 1 to 300 lbs. I will try and picture it to you next month. They are sold for \$1.00, I believe.

WORK AND WAGES FOR 1879.

HOW TO GET BETTER WAGES, AND HOW TO GET POORER.

THE following was intended for the use of the hands of our establishment only; but, on thinking it over, I concluded, inasmuch as we are all working for somebody, at least indirectly, that it would be valuable to all the readers of GLEANINGS.

The hands in my employ receive all the way from 25c. to \$4.00 per day, or from 2½ to 40c. per hour. All are hired by the hour, and as a general thing, they commence and stop when they choose. We used to have a great deal of scolding about hands not being on time in the morning, or not putting in a full 10 hours. After studying the matter over, and asking God to guide me, and give me patience, I finally employed a clerk to keep a record of the time when each hand commences, and when he stops, putting it on a card properly ruled, and arranged so that the sum of the hours each hand has worked during the week is added with very little trouble. Each one commences and stops just when he pleases, and this establishes pleasant relations between both parties. The aim was to have no fault finding on either side. Each hand has his work, and is expected to see that it is done properly and promptly, or report to the office, with his reason for not having it finished.

No one is expected to be absent a half day or more, without giving notice before hand, and getting some one to take charge of his work in his absence. They are also to be held responsible for all work done by such substitute. To insure promptness, a card is placed over each clerk's desk, reading as follows:

"Fill all orders and answer all letters by return mail or express, or give notice each night, of the work remaining undone, with the reasons for it. In my absence leave the notice on my table."

This gives me notice at once, of all hitches in the business, of goods that are not in stock, and points out those who are inclined to be dilatory and slack. Supposing a clerk fails to report orders remaining unfilled; he is first reasoned with, in a pleasant, friendly way, and given to understand in the same kind way, that if he cannot do his work without too much such supervision, he will have to give place to some one more efficient. I am glad to say that no one, so far, has been removed from his place. I have given above, the plan on which this is to be done. The greatest difficulty in making it work perfectly is that I am too small for my part of the programme. I cannot muster up the moral courage to insist on having all this carried out, and to do it pleasantly. I very often so dislike to give pain, that I pay for losses myself, rather than insist that the proper one should do so for his own good, as well as mine; and, worst of all, I am careless and forgetful myself, and do not set a good example for the rest. Do you know, dear reader, how hard it is to be always faithful?

The greater number of my boys and girls get only 75c. or a dollar a day, and many of them, as yet, have no especially assigned class of work. They do odd jobs as they come up. Very often, they come to me and say:

"Mr. Root, do you not think I could earn 25c. more a day?"

"Why, yes, my friend, I am quite sure you could."

"But, do I not earn it now? If not, why not?"

Now, there is not a single hand in my employ, that I have not watched and weighed in regard to his money value. I have often raised wages when it was not asked, and I assure you, nothing gives me a keener pleasure than to be able to raise the wages of anyone. I have sometimes raised wages, when I have felt it was premature; for it is not for an occasional faithful day that we can raise wages, but for a steady pull, day after day, and week after week. Many give as a reason, or excuse rather, for imperfect work, that they are not strong enough. Strength is very easily found, but brains are very scarce. I will give you an illustration:

Six bolts were wanted for putting up machinery. I was desired, as I was going up town, to get them, and that I might make no mistake, I put the dimensions on my pocket memorandum. The hardware man looked at his drawers where the different lengths were very nicely labeled, and I thought he found the proper drawer empty, but as he had his rule in hand, I supposed he found the right length

in another drawer. I sent them down by a boy, but he returned after awhile, saying they were not the length ordered. It then occurred to me, that the hardware man knew they were not right, but thought the longer ones would answer, and said nothing to me about it. I went in again, and his son waited on me. I told him we must have the exact length. He said he would be sure they were right, and I trusted him to do them up in a paper. Back went the boy, a half mile each trip. In the evening, the foreman said jokingly:

"Root, you are 'brilliant'!"

"Why?"

"The last time you sent only 5 bolts, and three of those were a half inch too short."

Shall I abuse the hardware man and his son for both cheating and blundering? No. Shall I then say mistakes happen in the best of families? No; that is only another subterfuge, and another humbug. Shall I think mankind a pack of idiots, and myself the biggest one? No. Shall I make up my mind to let Mr. Washburn attend hereafter to all such business, even if he does cost \$4.00 a day? By no means; shall I be so weak as to think I have got to pay \$4.00 a day for an errand boy? Well, what shall we do—all we who know by past experience that we are blunderers?

Take a lesson of Mr. Washburn, and see how he avoids mistakes. I have seen him work so often, I know just how he does it. He does not work particularly fast, but on the contrary, at first look, he seems to move rather deliberately, but he makes few, if any, false motions. He rarely has cause to say, "Oh! I forgot." He would go into the hardware store as I did, but his rule would be out and open before the bolts were handed over to him. The exact length and diameter would be taken before you had time to notice it, and if the wrong size were handed him it would be very quietly handed back. The bolts would be as sure to be right, as if he had fitted them into the place designed for them.

The first trouble was, I had no rule in my pocket. How many of you carry a rule, boys? Mr. W. knows how careless is humanity, and he does not trust to others, when he can verify things himself. He expects people to make mistakes, but instead of scolding them for it, quietly accepts it, and keeps a sharp lookout.

How many of you, boys, yes and girls too, who are working for wages, keep a knife in your pockets? Is the knife always sharp? During our busy season last summer, I found the boys continually running to our best carpenter for his knife. When he wanted it, he had to inquire all around for it. I talked with them about having knives, and they said they could not afford one, and that they always lost it, if they had one. One boy who could not afford a knife had a lump of tobacco in his cheek; others smoked cigars; but when they wanted a knife to cut the strings with which they tied up the bundles of sections, they had to hunt around among the carpenters, until they found one they could borrow. Do you think such delays as this made me feel like raising these boys' wages? A boy that cannot keep a sharp knife in his pocket, seldom gets over a dollar a day.

On the same day when the trouble about the bolts occurred, I noted the following "troubles":

The cows were found on the patch of seven top turns. The boys who harvested the silver hull buckwheat, nearly two weeks before, were desired by myself, to be sure and fix up the fence when they got through. My father afterwards told them the same thing, and asked them not to forget it. There were three of the boys; when interviewed, the excuse they gave was that it was too dark to put up the fence that night, and the next morning they forgot all about it. My turnips were eaten off, and all tramped up. How much would you pay boys, my friends, who let the cows into a crop because it was too dark to put the fence up? One of these has since asked to have his wages raised.

The blacksmith found the collar that holds the saws on the hand ripper, in his box of old iron; his shop is down cellar, and the machine is up stairs. Somebody else found the nut that held the collar on, in the pail of water where he cools his irons. I could not believe him, until I went up and found that both were missing. Had the machine been wanted, these things could not have been replaced without several dollars expense, and many days' delay. The hand who took off the saw, probably laid the collar and nut down, instead of screwing them on in place, in order to be sure they would not be

lost. Somebody else pushed them off on the floor, they were then carried down with rubbish, and got, I know not how, into the slop pail and old iron box. I confess this incident tried my patience more severely than almost anything that has happened all summer. For a long time after, I "got mad" whenever I thought of anyone's being so very heedless and careless with my property.

Three hands were getting a large and valuable stone into the boiler room. They let it fall, and broke it in two. I do not know how I can raise their wages; only one of them was probably to blame, and perhaps they would claim that nobody was. If any one of the three had said, "Now, boys, do not let us break this, whatever we do," I do not think it would have been broken.

A clerk was paying a man some money, and among the articles purchased was a little over 5 lbs. of copper wire for a telephone. I happened to notice the amount, and thought it was too much. The wire was 50c. per lb., but the amount carried out was over \$5.00. It was simply a mistake in multiplying, and as this clerk does not make such a mistake one time in a thousand, it should be called only an accident. I tell you, my friends, we can do better even than this. Following out Mr. W.'s plan, as soon as the clerk commenced the multiplication she should have said, mentally, "As the wire is a half dollar a pound, there will be half as many dollars as pounds; so the result must come somewhere near \$2.50;" applying not the rule of feet and inches to it, but the rule of keen common sense.

In the same way, I have been for years in the habit of making a rough estimate of what things should cost, or what results should be, long before my multiplications or additions are made, and thereby have stopped many a mistake, before it had gone farther. It all sums up, in having your wits constantly about you, your mind always on your work, and looking forward to anticipate any trouble that may come up.

One more illustration of how a hand can earn better wages happened that day. A man was working on hive stuff on a circular saw, and as he finished each board, he turned around and laid it down behind him. The next piece was picked up in a similar way. By night, this man would be very tired, and would have tired himself out in work worse than useless. A box or stand should have been provided, at an easy height, and close to his hand, or a boy should have put the boards in place and taken them away, so he would have had nothing to do but to push the pieces through. By arranging things properly, and setting two hands at the work, the whole lot was put through in 45 minutes.

This principle is by no means confined to my work; I presume you, my friend, might save a great part of your hard labor each year, by following out the principle I have suggested. If you are working for wages, you will not only stand a chance of getting better pay, but you will be sure of a place, at good wages, even when times are dull, and money scarce. Numbers are now coming to me for places in the new building, but careful, faithful hands, such as I have described, are never out of work, but are as a general thing hunted up, and wanted in a dozen places at once.

A boy who cannot keep and take care of a knife of his own will seldom take care of the tools and other property of his employer. I do not know but that I shall ask the next boy who applies for a place, to let me see his pocket knife; if it will whittle my lead pencil nicely, I can afford to hire him.

AN A B C SCHOLAR'S EXPERIENCE.

ESPECIALLY WITH QUEENS.

I SHOULD long ago have reported my experience with those three queens I got from you when I was in Medina, in July last, but protracted illness prevented me. I often think with pleasure of those two days I spent in your shop, and especially amongst your bees, and I saw and learned a good deal that is of value to me; but I don't think I bothered much with asking questions, or did I bother you, "friend Will?"

Those queens I took were of different looks; one was of such a beautiful golden color that I marked her No. 1, on the cage; the second, hardly inferior in looks, I called No. 2; and the last one, rather an inferior looking, dark queen, of smaller size than the other two, and with the tip of her abdomen quite black besides, I named No. 3.

With each one of them, I had more or less trouble in introducing, but I succeeded with all of them, in the end.

No. 1, I thought too valuable to risk with a colony of old bees, and so I made a nucleus, by taking from each of three strong swarms, one frame with hatching brood and the adhering bees. These frames I put into a Simplicity hive, and my queen in her cage on top of the frames. A couple of hours after, I saw in front of this nucleus a ball of bees on the ground, and imagine my feelings, when I found amongst them—a dead queen. In spite of my looking ever so sharp, as I thought, I had taken a queen along with those brood frames, and there she lay now, dead on the ground, and right behind me was a colony all in an uproar about their lost mother. Disgusting! wasn't it?

The following day, I released the Italian queen in this nucleus, and as all the old bees by this time would naturally have left for their old homes, I expected her majesty to be received with smiles and kisses; but in this, I was mistaken; for she was balled up in less than five minutes, and I had to release and cage her again, to save her from the fate of my poor black queen.

Next day, I tried again; but hardly had I opened the cage, when the contrary thing came rushing out and—flew away. A tremendous jump, the highest since my boyhood, in hopes to catch her, availed me nothing; she was too quick for me, and was out of sight in a few seconds. I felt almost bad enough to cry, but I remembered that the same thing occurred to friend Will, when I was with him, and that his queen came back again, after a little time, he leaving the hive open meanwhile. This gave me hope, and with beating heart, I watched at the side of the open hive for about ten minutes, when, sure enough, there she came flying slowly, straight to her hive, but alighting some five feet from it, on the ground. She almost slipped away once more, but, this time, I was too quick for her, and had her in her cage again before she was aware of it.

The following day, I let her out again; she did not try any more excursions, but staid on the comb as "honest queens" should do, and the bees treating her kindly, the introduction of queen No. 1 was a success.

Queen No. 2, I gave to a queenless colony. I had to fuss with her for 4 days before she was accepted, but after that, she was allowed to reign in peace.

Queen No. 3, the one with the black tip, I introduced to one of my most populous colonies (first made queenless, of course), and she was accepted on the fifth day. Two days after she had been safely introduced, I opened the hive towards evening, to see how she was doing, but hardly had I removed the cloth from the frames and blown a little smoke into the hive to keep the bees down, when lo! and behold! the old lady came running up and—flew away. I left the hive open and watched for the return of the truant; my daughter (my main assistant in my work with my bees) was with me, keeping a lookout at the entrance, while I watched the top of the frames, but neither of us saw anything of the queen. Tired of watching any longer, I took the frames out, and both of us kept on looking them over and over again, as minutely as if trying to find a pin in a haystack, but could discover no queen. It grew too dark, at last, for keeping up the hunt any longer; that queen was surely lost anyway, so I thought, and with a deep sigh of disappointment, I shut up the hive.

The following day, I had to go away on business, and when I came home again, towards evening, I was startled with the unexpected news, that the bees had been swarming. My daughter had hived them, but she had not seen from what hive they came.

As I had my lost queen from the day before upmost in my mind yet, I went and opened that particular hive, and here was a puzzle! Of my rousing big colony, there was but a handful of bees left; sure enough, they had swarmed, but without a queen? How is that? To solve this riddle, I went and shook my new swarm onto a sheet to find the queen, and behold! almost the first thing I cast my eyes on was—my lost, yellow queen, with her "black tip."

She must have got in unobserved the day before, and kept hidden somewhere while I was looking over the combs, as it is too improbable that she could have staid away over night, and succeeded in finding her hive the next morning.

As the queen seemed to be dissatisfied with her

first home, I thought best to accept this swarm and give it a new place.

The bees in the parent hive had no unsealed larvae (I had taken that out before introducing the Italian queen), and I had to supply them with this from another hive, to give them the means to raise a queen. As this swarming out, where the parent hive was left hopelessly queenless, goes against all my former experience, I hardly think this was a natural swarming act, after all.

Perhaps only the queen flew out at first, and as she had been away for quite awhile but the day before, the bees, being afraid of losing her, sallied forth after her in great numbers, and when she alighted they settled around her to keep her secure. Is this theory correct? or was this swarming an indiscretion of the queen, peculiar to the Italian race? But be this as it may, I had one more swarm anyway, and in spite of the lateness of the season (fore part of August), this is now (thanks to the movable comb frame) one of my strongest colonies.

In due time, the young bees appeared in my three Italianized swarms, and I feel so perfectly pleased and happy about them, that you will have to give me a corner in the "Smilery." All, as far as I can see, are pure three-banded Italians, but the largest and prettiest bees are those bred from queen No. 3, the one I valued least. This queen is besides wonderfully productive, and rather than lose her, I would be willing to give up the other two.

JUDGING BY LOOKS.

How much, with things in general, and queen bees in particular, can we be mistaken by judging from outward appearances only!

As the honey harvest in this locality was mostly over for the season, I had not much chance to find out which of my three Italian queens produced the most industrious (the main point with me) progeny; but if I breed queens next spring for Italianizing the rest of my bees, it will be from queen No. 3.

FOOT POWER BUZZ SAWS; A CAUTION.

I see in the last number of GLEANINGS, that friend Hutchinson made a foot power buzz saw, and I am glad he succeeded to his satisfaction; but I would advise everyone to be slow in investing money in such a thing, because I did and failed. I spent over a week on this concern, hired a carpenter to assist me several days, and his wages, together with the material (the leather belt alone was \$3), amounts to nearly \$20, with my time thrown in. For all this expense, I have a perfectly worthless piece of machinery, because it requires the strength of a Sampson to saw through only half inch stuff, and would flag even him out in less than 10 minutes.

When I was in Medina, you were unfortunately so busy with your type-writer (it being nearly the end of the month) that I was denied the privilege of a little visit with you, and for this reason you will have to excuse me, if I have made this visit a little more lengthy than I at first intended to do.

CHAS. KLIMITZ.

Batavia, N. Y., Nov. 23, 1878.

I cannot say why the bees swarmed out with the new queen, friend K., but I hardly think a queen can, of herself, induce swarming. I am glad to know your daughter works with you. I have just been thinking, what a safe place for a daughter by her father's side! and still more is it a safe place for a father by his daughter's side. I tell you, it is a great mistake to suppose that a father and daughter can have no feelings and pursuits in common.

I, too, am well aware that looks have but little to do with the value of a queen, and if we paid no attention to the looks of a queen at all, I believe it would be better for the honey crop. Judge them solely by the looks and doings of the workers. Your foot power saw certainly runs too hard. If the bearings are of iron, nicely polished, and well "tallowed," it must run easier after it has been used a while. Be sure that nothing binds about the machine; that is, make every separate part run free and smooth. Perhaps your belt is too heavy for such

work. For foot powers, a very thin soft belt is needed. Softening it with neat's foot oil, may help matters. I cannot remember seeing you, friend K., which I regret, as I have been very much interested in your instructive letter. This is not very strange however, as we have visitors almost all the time during the summer season.

"Friend Will" is supposed to be never weary of answering questions, for it is a part of his business.

MORE BEE ENEMIES.

WITH this I send you an insect enemy to the bee, of which I have seen nothing in any of the bee books or journals. I had several other specimens of the insect, but my little daughter accidentally destroyed them.

I also enclose two specimens of their handiwork, showing the cruel manner in which our poor little pets are mutilated, to furnish these marauding rascals a dainty feast.

Both of these bees are workers, as you see, and were crawling about quite actively when I caught them, though the entire contents of their abdomens were quite gone, leaving nothing but the mutilated shell, seemingly sucked quite dry. The little fellow whose abdominal shell is so badly torn on the upper side, I saw dropped from the claws of its enemy. This enemy, I first discovered perched, back down, upon a spray of cedar about 3 feet from the ground, with this identical bee in his embrace.

He had it by a back hold—his custom, I think—with his strong, short proboscis inserted in the top side of the poor bee's body, and was leisurely sucking the juices therefrom, very much in the same way that the *Asilus Missoniensi* regales himself. From the time I saw him, he was about one minute in literally sucking this little fellow dry, during which time the bee was perfectly passive. He then dropped it at the moment of leaving his perch and flew away, leaving his little victim to crawl about in this mutilated condition till it died.

The first of these depredators that I saw at work among the bees, I mistook for the common bumble bee, as we call it here, which often enters our hives for honey, and is frequently killed in considerable numbers, by the bees.

They bear a close resemblance in size and markings to one species of that bee that is abundant here in the spring, but their behavior is quite different. I have never seen one of them attempt to enter a hive, and their flight, and, indeed, all their movements, are much more rapid than those of the bumble bee.

They seem to operate in pairs, male and female. I think from their markings, often perched within 6 inches of each other, and leisurely devouring their prey. They have a curious habit of remaining poised on the wing, in one spot, for several seconds, their wings vibrating so rapidly as to be almost invisible, and then darting away so quickly that the eye fails to follow them.

They are very shy, and it is difficult to kill or capture them, except when devouring their prey. I have not been able to ascertain whether they capture the bees upon the wing or not. [Without doubt, they do. A. J. Cook.]

It was about the beginning of Sept., when I first noticed them catching bees, though I had seen a great many dead bees with the small holes in their bodies lying about, all summer; but this, I supposed, was the work of ants (the bees being already dead), or of the *A. Missouriensis*, which are not numerous here, or possibly of mosquito hawks, of which we have a great many. But close watching fixes the guilt, beyond a doubt, upon our new acquaintance, and I send him up to you fully committed.

I have, during Sept. and Oct., killed numbers of them, every one in *flagrante delicto*, claspings in his foul and deadly embrace one of our "little pets." Hold him up to the obloquy of the whole world. Expose the affairs of his private life remorselessly. Spare him not, but cry aloud and let us know all about him.

If I can secure a pair, I will send them to you, though it is probably too late to do so this season.

A. H. BRANTLY, M. D.

Decatur, Ga., Nov. 14, 1878.

ANSWER BY PROF. COOK.

MR. EDITOR:—You may perhaps remember that I received last August, through you, from Mr. J. F. Montgomery, of Lincoln, Tenn., an insect which much resembled a bumble bee, with the report that it was waging savage warfare upon his bees. As the specimen was sadly mutilated, I at once wrote to Mr. Montgomery, who kindly sent me four more specimens, with the remark that they were very quick on the wing, and when found at rest, always had a bee in their fatal grasp.

Mr. M. killed these last insects, after striking them down with a board, by applying coal oil. This, with the wear and tear in transit, had so injured the specimens that I can not give as full a description as I should desire.

The insects plainly belong to the Family Asilidae, the same that includes the Missouri Bee-Killer, *Asilus missouriensis*, the Nebraska Bee-Killer, *Promachus bastardi*, and other predatory insects, several of which, I regret to say, have the same evil habit of killing and devouring our friends of the hive.

The characters of this family, as given by Loew, one of the greatest authorities on Diptera, or two-winged flies, are prolonged basal cells of the wings, third longitudinal vein bifurcate, third joint of antenna simple, under lip forming a horny sheath, empodium, a projection below and beneath the claws (Fig. 6, c), a horny bristle.

The insect in question belongs to Loew's 3d group, Asilina, as the antennae end in a bristle (Fig. 3), while the second longitudinal vein of the wing (Fig. 4, b) runs into the first (Fig. 4, a).

The genus is *Mallophora*. The venation of the wings much resembles that of the genus *Promachus*, the same that contains the Nebraska Bee-Killer, though the form of these insects is very different. The Nebraska Bee-Killer is

long and slim like the *Asilus missouriensis* (See Manual of the Apiary, Fig. 108), while the one in question is much like the neuter bumble-bee in form.

In *Mallophora* and *Promachus*, the venation is as represented in Fig. 4, where, as will be seen, the second vein (Fig. 4, b) forks, while in the genus *Asilus* (Fig. 5), the 3d vein is forked, though in all three genera the third joint of the antennae (Fig. 3) ends in a prolonged bristle.

The insect, which I am informed by Dr. H. Hagen is *Mallophora orcina*, Weid. (Fig. 1) is 1 inch long, and expands $1\frac{1}{2}$ inches (Fig. 2). The head (Fig. 3) is broad, the eyes black and prominent, the antennae 3 jointed, the last joint terminating in a bristle, while the beak is very large, strong, and like the eyes and antennae, coal black. This is mostly concealed by the light yellow hairs, which are crowded thick about the mouth and between the eyes.

The thorax is prominent and thickly set with light yellow hairs. The abdomen is narrow, tapering, and covered with yellow hairs except the tip, which is black. Beneath, the insect is clear black, though there are scattering hairs of a grayish yellow color on the black legs. The pulvilli, or feet pads (Fig. 6, b), are two in number, bright yellow in color, surmounted by strong black claws (Fig. 6, a), while below and between is the sharp spine (Fig. 6, c), technically known as the empodium.

I can not give the distinctions which mark the sexes, nor can I throw any light upon the larval condition of the insect.

The habits of the flies are interesting, if not to our liking. Their flight is like the wind, and perched near the hive, they rush upon the unwary bee returning to the hive with its full load of nectar, and grasping it with their hard strong legs, they bear it to some perch near by, when they pierce the crust, suck out the juices, and drop the carcass, and are then ready to repeat the operation.

A hole in the bee shows the cause of its sudden taking off. The eviscerated bee is not always killed at once by this rude onslaught, but often can crawl some distance away from where it falls, before it expires.

Another insect, *Mallophora bomboides*, Wied, was lately received from Mr. N. J. Bayard, of Maitland, Florida. This fly might be called a larger edition of the one just described, as in form, habits, and appearance, it closely resembles the other. It belongs to the same genus, possessing all the generic characters already pointed out. Mr. Bayard has witnessed their depredations for some time, but finds it difficult to capture them, as they are so quick and active.

This fly is 1.5-1.6ths inches long, and expands $2\frac{1}{2}$ inches. The head and thorax are much as in the other species. The wings are very long and strong, and, as in the other species, are of a smoky brown color. The abdomen is short, pointed, concave from side to side on the under surface, while the grayish yellow hairs are abundant on the legs and whole under portion of the body. The color is a lighter yellow than in the other species.

These insects are powerfully built, and if they become numerous, must prove a formidable enemy to the bees.

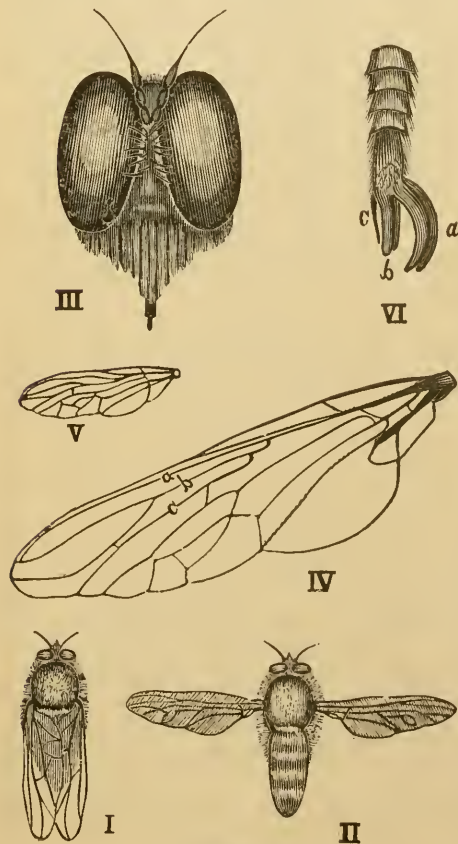
The insect sent by A. H. Brantley, M. D., of Decatur, Ga., though it closely resembles the two just described, is of a different genus. It is the *Laphria thoracica* of Fabricius. In this genus the 3d vein is forked, and the 3d joint of the antenna is without the bristle, though it is elongated and tapering. The insect is black, with yellow hair covering the upper surface of the thorax. The abdomen is wholly black both above and below, though the legs have yellow hairs on the femurs and tibia.

This insect belongs to the same family as the others, and, as will be seen by Dr. Brantley's letter, has the same habits. It is found North as well as South.

I should be very glad if the gentlemen referred to above and any others would send me a number of specimens of these insects, and of all others which are seen preying upon our bees. Insects may be killed without injury by turning a little benzine upon them, and by enclosing in a small box, packing closely about them with cotton batting, they may be sent safely in the mails. As they are so light the postage is but very little.

Any rubbing removes the hair, and may break off the legs or antennae, which parts are very necessary in determining the species.

A. J. Cook.
Agricultural College, Lansing, Mich., Nov. 21, '78.



A NEW BEE-KILLER.

ROBBING. Paul says, "The love of money is the root of all evil." I should be inclined to state it in this way; the disposition to get money without rendering an equivalent, is the root of all evil. Well, the root of a great many evils, in bee-keeping, is the disposition of the bees to gain money without rendering any equivalent. Some one of our A B C class has said that he found bees making visits to over 100 clover heads, before they obtained a load sufficient to carry to their hives. I think it very likely, that during a great part of the season, a bee will be absent a full hour, or it may be, during unfavorable spells, as much as two hours, in obtaining a single load. Is it at all strange, that a bee, after having labored thus hard during the fore part of the day, should, in the afternoon, take a notion to see if he could not make a living in some easier way? Would he be very much worse than many types of humanity? Well, as he passes around to other hives, he catches the perfume of the clover honey they have gathered in a like manner, and by some sort of an operation in his little head, he figures out that if he could abstract some of this, unperceived, and get it safely into his own hive, he would be so much the gainer. I presume he has no sort of care, whether these other folks die of starvation or not. That is no concern of his, at all.

With all of their wonderful instincts, I have never been able to gather that the bees of one hive ever have any spark of solicitude as to the welfare of their neighbors. If, by loss of a queen, the population of any hive becomes weak, and the bees too old to defend their stores, the very moment the fact is discovered by other swarms, they rush in and knock down the sentinels, with the most perfect indifference, plunder the ruined home of its last bit of provision, and then rejoice in their own home, it may be but a yard away, while their defrauded neighbors are so weak from starvation, as to have fallen to the bottom of the hives, being only just able to feebly attempt to crawl out at the entrance. Had it been some of their own flock, the case would have been very different indeed; for the first bee of a starving colony will carry food around to his comrades, as soon as he has imbibed enough of the food furnished to have the strength to stagger to them.

Well, suppose the bee mentioned above, in prowling around in the afternoon or some other time, should find a colony so weak, or so careless, that he could slip in unobserved,

and get a load from some of the unsealed cells, and get out again. After he has passed the sentinels outside, he will usually run but little danger from those inside, for they seem to take it for granted that every bee inside is one of their number. There is danger though, for should he betray too great haste in repairing to the combs of honey, they will often suspect something; so he assumes an indifference he is far from feeling, and loiters about very much as if he was at home, and finally, with a very well assumed air of one who thinks he will take a lunch, he goes to the cells, and commences to fill up. Very often, when he gets pretty well "poddled out" with his load, some bee approaches, apparently to see if all is right. When the robber once gets his head into a cell, however, he seems to have lost all sense or reason, and if he is discovered at this stage to be a stranger and a thief, he is often pounced upon and stung with very little ceremony. How do they know a stranger from one of their own number, where there are so many? It is said, they know by the sense of smell; this may be the principal means of distinguishing strangers from their own number, but I think they depend greatly on the actions and behavior of a bee, much as we do when judging of the responsibility of a man who asks to be trusted. We can give a very good guess, simply by his air or manner, or even by the sort of a letter he writes. If a robber is suspected, and a bee approaches for the purpose of satisfying himself, it is a very critical moment, and one becomes intensely interested in watching the performance. The robber will stand his ground, if he is an old hand, and permit himself to be looked over with a wonderful indifference, but one who has watched such scenes closely will detect a certain uneasiness, and a disposition to move slowly toward the entrance, that he may be the better able to get out quickly, when he discovers things to be too hot for him inside. If the bee who first suspects him concludes he is an interloper, he begins to bite him, and grab hold of his wings to hold on until others can come to help. The thief has now two chances to escape, and sometimes he seems meditating which to adopt; one is to brave it out until they shall perhaps let him alone, and then slip out unobserved. The other is to break away, and trust to his heels and wings. The latter plan is the one generally adopted, unless he is a very old and "hardened sinner" in the business. One who has been many times in such scrapes will usually get away, by the latter plan, by

an adroit series of twists, turns, and tumblers, even though three or four bees have hold of him at once. Some of these fellows, by a sudden and unexpected dash, will liberate themselves in a manner that is also wonderful, and then, as if to show their audacity, will wheel about and come back close to the noses of their retainers of a minute before.

But in case the bee gets his load, and makes his way out unobserved, he gets home very quickly, you may be sure, and under the influence of this new passion for easily replenishing his hive with the coveted sweets, he rushes out with a vehemence never known under any other circumstances. Back he goes and repeats the operation, with several of his comrades at his heels. Does he tell them where to go? I wish to digress enough here to say, that I do not believe in a so called language among bees, or animals in general, further than certain simple sounds which they utter, and which we may learn to interpret almost, if not quite, as well as they do. When a bee comes into the hive in such unusual haste, podded out with his load in a way also rather unusual where it is obtained from ordinary stores, his comrades at once notice it, and either from memory or instinct, they are suddenly seized with the same kind of passion and excitement. Those who have had experience at the gambling table, or in wild speculations of other kinds, can understand the fierce and reckless spirit that stirs these little fellows. Patent hives illustrate the matter very well. A man who afterwards became editor of a bee journal once held up before my untutored eyes, a right to make a patent hive, saying:

"Mr. Root, I get \$5.00 for these rights, and they do not cost me more than the paper they are printed on—less than half a cent apiece."

The idea that \$5.00 bills could be picked up in that way, compared with the slow way I was in the habit of earning them, so impressed itself on my mind that I could hardly sleep nights; but after I had taken that amount from several of my friends and neighbors for the "right," I concluded that money without a clear conscience is not just the thing after all. Can we blame the poor bees, for being so much human? Well, the bees, when they see a comrade return in the way mentioned, seem to know without any verbal explanation, that the plunder is stolen. Anxious to have "a finger in the pie," they tumble out of the hive, and look about, and perhaps listen, too, to find where the

spoil is to be had. If they have, at any former time, been robbing any particular hive, they will repair at once to that; but if it is found well guarded, those used to the business will proceed to examine every hive in the apiary. As an illustration of the way in which they communicate, or rather observe the movements of each other, see account of bees getting into the honey house, given in POLLEN.

Of course, they have particular notes, as of joy, sorrow, anger, despair, etc., which are produced by the wings, usually when on the wing, but I am quite sure they are unable to communicate to each other more than a single idea. In other words, they have no faculty of telling their fellows that a lot of honey is to be had in a feeder at the entrance, and that it would better be brought in quickly, or other bees may find it. A bee goes out in the spring, and by smelling around the buds, discovers honey and pollen; when he comes into the hive, the others see it and start out, and hunt it up in a similar way. For more on this subject, see SWARMING.

If you will turn back and read *ANGER OF BEES*, you will get a very good idea of the causes that start bees to robbing. Read also, *BEE-HUNTING, FEEDING*, etc. As a general thing, bees will never rob so long as plenty of honey is to be had in the fields. During a bountiful flow, I have tried in vain to get bees to take any notice of honey left around the apiary. At such times, we can use the extractor right in the open air, close to the sides of the hives, if need be. On one occasion, I remember leaving a comb of unsealed honey on the top of a hive, from morning until noon, and not a bee had touched it. It seems, they preferred to go to the clover fields, in the regular way, rather than to take several pounds from the top of a neighboring hive. I can readily suppose that they did not have to visit anything like a hundred blossoms at this time, and perhaps they secured a load in going to not more than a half dozen. Such a state of affairs is not very usual in our locality. We have very few days during the season, when it would be safe to use the extractor for a whole day in the open air; the bees will generally learn to follow the freshly uncapped combs about, and that it is easier than going to the fields. The first indication of robbing which you will have, will probably be the cool and wicked way of stinging, that I have described in *ANGER OF BEES*.

After the season begins to fail, you may expect that every colony in your apiary will

be tried. As a rule, any fair colony will have sentinels posted to guard the entrance, as soon as there is a need of any such precautions. The bee that presumes to think he may enter for plunder will be led off by "the ear," if I may so express it, and this will be repeated, until he learns that there is no chance for speculation at that house. At the close of the honey harvest, we should be sure that there are no feeble hives that may be overpowered, for one such may start the fashion of robbing, and make it a much harder matter to control this propensity. An apiary, like a community, may get so demoralized, that thieving becomes a universal mania. "A stitch in time will save" a great many more than nine, in this case. Be sure that each colony has the entrance contracted, and, in fact, the space occupied by the bees also, in proportion to their numbers. Give them only so many combs as they can cover, if you wish them to defend them properly, from either moths or robbers. A colony without either queen or brood is not apt to fight for their stores very vigorously, so it will be well to see that they have either one or both, should there be an attack made on them. It is hardly necessary to repeat what has been said about Italians being better to defend their stores than the common bees. A dozen Italians will often defend a hive better than a whole swarm of black bees.

COLONIES THAT WILL MAKE NO DEFENSE.

Although this is contrary to the rule when the queen and number of bees are all right, yet such cases do sometimes come up. I have found that colonies which have been wintered in-doors are most liable to get into that peculiar state, where they will allow bees from other colonies to come in and help themselves without molestation, yet it is not always the case. When they cannot be stirred up so as to show a particle of spunk or resentment, the temptation is sometimes very strong to say, "It is good enough for them; they ought to starve." This might be gratifying to one's feelings for the time, but on the whole, it would not pay. I have cured them of it, in various ways; sometimes by giving them some good fighting bees from another hive, and sometimes they got over it themselves after being shut up a while. I have tried scenting the robbers with some strong odor, like camphor or peppermint. Do this just at night, and by the next morning, the bees from each colony have an odor so distinct, that the sentinels have no trouble in telling their own bees

from the others. This has seemed to answer, but as they might have been all right anyway, I am not quite certain that changing the scent was the cause of the cure. Contracting the entrance and closing all cracks and crevices are always very important in stopping robbers.

HOW TO STOP ROBBERS.

It depends a great deal on what particular stage of proceedings they have reached. If they are fighting briskly, and stinging one occasionally, they will usually take care of themselves, if there are plenty of bees inside, and their entrance is contracted. I have known the robbers to get up so early on a cool morning that the regular inmates were not stirring, and before they were roused, and could put a stop to it, the robbers had quite a lively "trade" started. This is a bad fashion for an apiary to learn, but it will usually cure itself, if the colonies are all strong. If the bees are going in and out very rapidly, and running over the sentinels in a way indicating that they are overpowered, you must shut up the hive at once. Now be sure you shut it up so it will stay. Putting blocks before the entrance is of but little use, for the united strength of the robbers will move quite a heavy weight. Sliding the hive back, as we do the Simplicity, is about the safest way which I know, of closing the entrance just as you want it, and having it stay. Now be sure you remember the caution I am going to give you in regard to this. Should the hive be standing in the sun, during a very hot day, and be full of bees, they would be very likely to smother, without a good deal of air.

There are several ways of preventing bees from smothering, when the hive is closed, and a very common one is to give them air, by means of an opening closed with wire cloth. Unless this is quite large, they will often pack so densely over it, as to exclude every particle of air, and thus defeat its purpose. If an upper story can be put on, and this covered with wire cloth, it will do very well, but even then the robbers inside make such a fuss as to call the robbers outside to them, and keep up a disturbance in the apiary all day. But a still worse objection is that the robbers will sometimes make an arrangement with those inside, by which they will pass the honey out, and thus clean out the hive, in time, as effectually as if they were allowed admittance. Our neighbor, Shaw, used a double wire cloth, with a half inch space between the sheets, for his small nucleus hives, just to prevent this kind of

sharp practicing. I have several times seen bees pass honey through the wire cloth in this way, but have always stopped the fun, before the insiders had passed it all out. A correspondent in the Jan. GLEANINGS for 1879, gives an instance, where the whole of the honey was handed out to the robbers, leaving the insiders so destitute that they actually starved to death, the whole of them. 'These fellows, it seems, were a little too sharp, and in their greed for ill gotten gains, rather overstepped themselves.

Well, if we cannot give them ventilation through wire cloth, what shall we do? I would let the robbers out, without letting any of the outsiders in; I generally do this by brushing away, with a little bunch of asparagus tops, all the bees which are around the entrance, and then keeping them away until all get out that wish to. You can then close the hive with very little danger. If the colony is a large one (it is very seldom a large colony is caught being robbed), you would better shade the hive, to be on the safe side. It will also be a good idea to set on an upper story, and let them go up into that. If you have got the robbers all out, it will often do to give them their liberty the next morning, but if they will not defend themselves then, I would shut them up and let them remain 3 days. By this time, all the bees that remained in the hive, or a large part of them, even if they are robbers, will adhere to the stand as if it had always been their own. I hardly know why this is, for a bee remembers things that happened several weeks before. Perhaps they get interested in the ways of their new home, and conclude to cast their lots there. I know that bees remember more than 3 days, because I once carried a stock away to a swamp and kept them there about a month. When I brought them back, I placed them on a new stand, and jostled them a little in opening the entrance. At this they sallied out in quite a body, but when they tried to return to their hive, they all went directly to their old stand. Bees have been known to do the same, after being in a bee house over winter.

After a colony has been confined a day or two, because they would not repel robbers, I would let them out just about sundown, and watch them closely. To be on the safe side, you would better get up next morning before they begin to fly, and see if they are all right. It sometimes puzzles beginners exceedingly, to know whether the bees that come out are robbers, or the ordinary inmates of the hive.

HOW TO KNOW ROBBER BEES.

A robber bee, when he approaches a hive, has a sly, guilty look, and flies with his legs spread in rather an unusual way, as if he wanted to be ready to use his heels as well as wings, if required. He will move cautiously up to the entrance, and quickly dodge back, as soon as he sees a bee coming toward him. If he is promptly grabbed for, as soon as he attempts to go in, you need have but little fear. If a bee goes in and you cannot well tell whether he was a robber or not, you must keep a close watch on the bees that come out. This is a very sure way of telling when robbers have got a start, even at its first commencement. A bee, in going to the fields, comes out leisurely, and takes wing with but little trouble, because he has no load. His body is also slim, for he has no honey with him. A bee that has stolen a load, is generally very plump and full, and as he comes out, he has a hurried and guilty look; besides, he is almost always wiping his mouth, like a man who has just come out of a beer shop. Most of all, he finds it a little difficult to take wing, as bees ordinarily do, because of the weight. IN BEE HUNTING, I told you how a bee laden with thick undiluted honey, would stagger several times under his load, before he could take wing for his final trip home. Well, the bee when he comes out of the hive with the honey he has very likely just uncapped, feels instinctively that he will be quite apt to tumble unless he can take wing from some elevated position, and therefore he crawls up the side of the hive before he launches out. When he first takes wing, he falls a little by the weight of his load, before he has his wings fully under control, and therefore instead of starting out as a bee ordinarily does, he takes a downward curve, coming quite near the ground, before he rises safely and surely. With a little practice, you can tell a robber at a glance, by his way of coming out of the hive, particularly, by that fashion of running up the side of the hive before taking wing, in the way I have mentioned. As soon as you find bees coming out of the hive loaded, shut it up at once. If there are not many of them, there will be no danger of suffocation. It is the bees gorged with honey that are most apt to suffocate, for they are much like an individual who has eaten too large a dinner, and they cannot stand close confinement. When near suffocation, they will disgorge the honey, and the quantity is often sufficient to wet the whole mass almost as thoroughly, as if they had been dipped in honey. Tho

heat given off by the damp crowd is often so great as to melt down the combs into a sticky mass, and when touched by the hand, it often feels almost scalding hot. The bees soon die in this condition, for their breathing pores are closed, and unless they can be speedily licked off by other bees, or washed, they will be "no good." If they are found in this condition, with life enough to move, they may be saved by giving them to clean bees to lick off, but they should be confined so that they cannot readily crawl out of the hive in the dirt; they will always do this if they can, for they seem to consider themselves of no use, and like any ailing bee, try to get off out of the way of those that are healthy and well. I have often saved almost every one, by dipping a teacupful, or even a pint, with a spoon, and placing them right over the frames of a strong colony. If you do not give each hive too many at once, they will soon clean them off as bright as themselves. Letting the outside robbers get at the mass will do, but it may result in more trouble, unless you are master of your business. One of our feminine friends reported a short time ago, saving such a colony, by washing the bees in warm water, and then drying them in the sun, in a box covered with wire cloth.

HOW TO TELL WHERE THE ROBBERS BE- LONG.

If you are a bee hunter, you will probably line them to their hive without any trouble, but if you are not, you can easily find from which hive they come, by sprinkling them with flour, as they come out of the hive being robbed. Now watch the other hives, and see where you find the floured bees going in. I can generally tell in a very few moments, by the excited actions of the robbers, already mentioned. It has been often recommended that the combs be broken and the honey set running in the robbers' hive, that they may be induced to stay at home; this will sometimes check them, but as these colonies are almost always extra spry and active, they will have things fixed up in a trice, and be out at their old trade again. In trying to people our house apiary, in the fall, when it was first built, I had a great deal of trouble with one certain colony. In fact, if any robbing was going on anywhere, it was sure to be these hybrids who were at the bottom of the mischief. After I had tried every plan I had heard recommended, and still these fellows would persist in pushing into every new colony I started, the idea occurred to me that, on the principle that it takes a rogue

to catch a rogue, it would be well to try and see how they would repel robbers. I simply took the greater part of the combs from the robbers, bees and all, and carried them into the house apiary, and put them in place of the colony which they had been robbing. The effect was instantaneous. Every laden robber bee that came home with his load, on finding the queen and brood gone, at once showed the utmost consternation, and the passion for robbing was instantly changed to grief and moaning for the lost home. The weak colony which they had been robbing, and which had only a queen cell, was placed with them, and they soon took up with it, and went to work. The robbers newly domiciled in the house apiary, repelled all invaders with such energy and determination, that the rest seemed to abandon the idea which they, doubtless, had previously formed, viz., that the house apiary was a monster hive but illy garrisoned, and I had but little trouble afterward. Before I swapped them, as I have mentioned, I had serious thoughts of destroying the queen, simply because they were such pests; but the year afterward, this colony gave me in the house apiary, over 100 lbs. of comb honey.

SWAPPING COLONIES TO STOP ROBBING.

The practice of swapping colonies is not always a very safe one, on several accounts, although an experienced, or a careful hand, will often make it serve an excellent purpose. Sometimes the queen of the weaker colony may be attacked and destroyed, and again bees from other hives may strike in, and both being demoralized by the unexpected transition, and unfitted to repel intruders, robbing may be started on a much larger scale than before. Instead of exchanging hives and all, I think by far the better way is to leave the hives on their old stand, and simply exchange the greater part of the combs, with the bees adhering. With the fingers between each two combs, with both hands, we can raise four combs with all the adhering bees, and carry them all together. If done in this way, enough of the original inmates will be left in the strong hive to protect it, and enough will also be carried to the weaker hive to make it perfectly safe. The queen of the stronger hive will be in no danger, but the queen of the weaker one may have to be caged, although I have seldom found this necessary.

WHAT HAPPENS IF ROBBING IS NOT STOP- PED.

Well, when the work is under real headway, the honey of a strong colony will disap-

pear in from 2 to 12 hours; the bees will then starve in the hive, or go home with the pil-lagers, or scatter about and die. This is not all; when the passion is fully aroused, they will not hesitate to attack the strongest stocks, and you will find your bees stung to death in heaps, before the entrances. This may, after a spell, put a stop to it, but I have seen them push ahead until every hive in the apiary was in an uproar, and it seemed as if every bee had gone crazy, sure. At such times, the robbers will attack passers by, in the streets, and even venture an attack on cats, dogs, aye, and hens and turkeys too. Like the American Indians when infuriated at the sight of blood, every bee seems to have a demoniacal delight in selling his life, by inflicting all the torments he possibly can, and feels sad because he cannot do any more mischief.

The account below, taken from page 224 of *GLEANINGS for 1877*, illustrates very vividly what I have tried to describe.

I send you a paper, the *Valley Herald*, published at our county seat, which has a little article on "Bees on a Rampage." I would be glad to hear your views on the subject. What caused those bees to act so, &c.?
JOHN W. HOODENPYLE.

Looney's Creek, Tenn., July 10, 1877.

BEES ON A RAMPAGE.

Mr. Elisha Tate, who lives some fifteen miles from this place on the head of Battle Creek, met with quite a singular misfortune on the 19th inst. He has, or did have at that time, about twenty hives of bees, and on that day, while all were away from the house except a daughter and the babe, the bees became mad from some cause or other, left the hives in large swarms and commenced to sting every living thing on the place. They attacked the daughter, who fled from the house, leaving the babe on the bed. A fine jack was stung to death in the stable; all the chickens were killed, and a sheep, that was around the house, was stung so badly on the nose that that organ swelled to huge dimensions, causing death by suffocation. The cries of the daughter brought Mr. Tate to the house, and he proceeded to rescue his babe, which he found literally covered with bees; and we understand that it was with great difficulty that its life was saved. Mr. T. attempted to destroy the bees at night by piling fodder on the hives and setting fire to it, but it only served to again arouse them and they attacked the family and compelled them to abandon their house and go to a neighbor's.

No one can account for the strange occurrence. Some think that a snake must have visited the hives, as it is known that bees have the greatest antipathy toward snakes.

In all probability, the account is considerably exaggerated, as such things usually are before they get into the papers, but it affords an excellent lesson nevertheless on the results of letting bees get into a habit of robbing each other, or of finding honey scattered about the premises. I tried, in *ANGER OF BEES*, to illustrate it, but the above does it still better. The worst season seems to be after basswood is over, and the bees seem to get especially crazy, if they even get a smell of this aromatic honey left carelessly about the hives. One who has never seen such a state of affairs, can have but little idea of

the furious way in which they sting everything and everybody. The remedy is to get a kettle of coals and put in enough chips or sawdust to make a "big smoke;" carry this out among the hives and proceed to close every hive that shows any symptoms of being robbed. Shut up every bit of honey where not a bee can get at it, and do your work well, for at such times they will wedge into, and get through, cracks that would make one think *inch boards* were hardly protection enough. Just before dark, let all the robbers go home, and be up betimes next morning to see that all entrances are close and small, and that all the hives are bee tight. An experienced hand will restore peace and quietness in a very short time, in such a demoralized apiary. Black bees are much worse than Italians, for the latter will usually hold their stores against any number of assailants; good, strong, well made hives, filled with Italians, with plenty of brood in each, will be in little danger of any such "raids," although we have seen the wounded and slain piled up in heaps before robbers would desist and give up trying to force an entrance.

The love of honey, my friends, is by far more potent than "snakes" in demoralizing an apiary. I do not think bees have any particular enmity to them.

There is one more point; if in uncapping drone brood, or in cutting out brood to rear queens, you leave the cappings or bits of comb scattered about, the bees will get a taste of the milky fluid and juices of the brood, and it seems to craze them worse than honey even, if that is possible. Below is a letter illustrating it.

CROSS BEES.

I had some of the crosser bees this summer that were ever heard of. They would fight the top of a stovepipe that runs up through a shed roof; there would be 50 or 100 bees at once, just whacking against that pipe, and very many fell into it and burned to death. They would dive into my smokepan, and burn up in that, and sting folks along the road. What the cause was I could not imagine, but at last I happened to think. I had been destroying drone brood, and when it was in a milky state I could not shake it out of the combs; the bees would eat it and it just made them crazy and ugly. Well, I always want to be sure about anything, so I left it off for awhile and they became peaceable again. On again giving them access to the milky brood, the same result followed. I suppose you will laugh, but I am well satisfied that this and this only, was the cause of the fierceness of the bees. D. GARDNER.

Carson City, Mich., Nov. 9, 1877.

PREVENTION OF ROBBING.

Beginners are very apt to say that the bees must rob some, that there is no such thing as preventing it absolutely. They say honey will get daubed about, on the door knobs, on the posts, and on the ground, and that it cannot be helped; that the bees will rob after

the honey yield has ceased, for they will crowd into the hives when they are opened to cut out queen cells, etc. Is this so, my friends? To be sure it is not. You can have your honey house as clean as your kitchen, and you can have every particle of honey cleaned up. You can have a wash basin and cloth, and just the moment a drop falls, you can, if you have a mind to, get right down on your knees and clean it up. You can not afford to take so much time? I verily believe it will take less time to have everything neat, and always in place, than it will to have such scenes of disorder. I could sit down and cry, many times, if I thought it would do any good, to see young people defeat themselves, and make themselves unhappy too, by their heedless, careless way of doing things. Is it because they have not been trained differently? Perhaps so, and perhaps experience is the best teacher. Experience is a very slow teacher, and I would like to stir you all up, and have you get along faster in habits of neatness, for I know you all admire a neat apiary nearly, if not quite, as much as I do.

A GREAT DISCOVERY.

I have often, when beset by robbers during some experiment I wanted to make in the fall of the year, longed for some place where I could carry a single hive, where it would be entirely free from bees of other hives. I first thought of some spot in the country, where there were no bees within a couple of miles, but as such a spot would be difficult to find here, I thought of a wire cloth house; but then, you know, the bees of my one hive would fly against the wires, and so that would not be free from difficulties either. I have before mentioned my troubles in trying to people the house apiary, in the fall. Queens were already hatched in the lamp nursery, and unless the colonies were divided at once, so as to make use of them, all would be lost. The surplus combs for making these late swarms were in the upper stories, and the robbers knew it; for no sooner was a cap raised than they were on hand, and before I could get the brood combs to go with them (I found that the bees would not adhere even to their own combs, unless some of them contained unsealed brood), a smart traffic would be under way. It came night, and my hives and queens were in all sorts of bad shapes. I was glad to have it come night, I assure you, for I longed for the time when the robbers would be compelled, by the gathering darkness, to go home. I presume many of you have had

cause to repent trying to work with bees when it began to grow dark, but I got the idea into my head that, with some good lamps with nice shades on them, I could do my work in the evening. I went at once and got a lamp, and walked around the apiary, viewing the inmates of the different hives, that were clustered out at the entrances, humming merrily, I presume in remembrance of the rich loads they had but an hour before snatched from me. Scarcely a bee took wing, and I then ventured to open a hive. With the lamp on one of the posts of the trellis, I found I could handle the bees almost as well as in daylight, and to my intense relief, not a bee would leave his hive, no matter how many combs were held temptingly under their very noses. I went to work, divided my hives, caught the queens, and even handled vicious hybrids, with less stings than I could possibly have got along with in the daytime. As I passed again and again the hives of the robbers who were clustered out viewing proceedings, I could hardly resist the temptation to place my thumb at the side of my nose, to let them know how much I enjoyed having completely outwitted them. The last hive in the house apiary was filled, unsealed brood and a queen cell given to all, and all were fixed so that they could repel robbers by morning, without trouble. Of course, I had a good smoker, and this did much towards preventing them from taking wing. If the lamps were placed very near the bees, occasionally a bee would buzz against the light, but when placed off at a distance of 6 or 8 feet, they rarely approached it. I have extracted honey, late in the fall, by moonlight, when it would have been impossible to do it in the daytime, on account of the robbers.

There is a kind of pillaging called borrowing, where the bees from one hive will go quietly into another, and carry away its stores as fast as gathered; but this usually happens where the robbed stock is queenless, or has an unfertile queen. As soon as they have eggs and brood, they begin to realize what the end of such work will be. This state of affairs seldom goes on a great while. It either results in downright robbing, or the bees themselves put a stop to it.

Caution to beginners.—The first year I kept bees, I was in constant fear that they would get to robbing, as I had read so much about it in the books. One afternoon in May, I saw a large number of bees passing rapidly out and in, at a particular hive, and the more I examined them the more I was

persuaded that they were being robbed. I contracted the entrance, but it seemed to make little difference; I finally closed it almost entirely, compelling the bees to squeeze out and in, in a way that must have been quite uncomfortable, at least. After awhile, they calmed down, and we had only the ordinary number of bees going out and in. "There," thought I, "if I had not read the books and known how, I might have lost my bees," and I presume I felt very wise, if I did not look so. On turning my head, behold the robbers were at another colony, and they had to be put through the same programme; then another, and another; and I concluded a host of robbers had come from somewhere, and made a raid on my apiary, and that had I not been on hand, the whole of them would have been ruined. I had got very nervous and fidgetty, and when I found the whole performance repeated the next day, I began to think bee-culture a very trying pursuit. Well, in due course of time, I figured out that there was no robbing at all, but that it was just the young bees taking their afternoon play spell. Since then, I do not know how many of the A B C class have gone through the same, or a similar experience, and it is but a few days since I saw our minister and his wife out by a hive, closing it up, to stop the robbers that were making a raid on it. On my suggesting that they were mistaken, they replied, "Why, the air was full of them, and we could see them circling about away up in the air," proving conclusively to me, that it was the young bees playing, as I have said before. The directions I have given for distinguishing robbing bees from the ordinary inmates of the hive, will enable you to tell whether it is playing or robbing; but, as the books had not described the afternoon play spell that young bees always take in suitable weather, I was somewhat excusable.

RAPE. (*Brassica*). This plant is a near relative of the turnip, cabbage, mustard etc. All of them yield honey largely, where grown in sufficient quantities. As RAPE is the only one of which the seed is utilized for purposes other than for increase, it should play a prominent part on the honey farm. It would seem, in fact, that it is almost the only plant that should stand beside BUCKWHEAT, or rather perhaps above it, for the honey from the RAPE is very much superior to buckwheat honey. The great drawback is the lack of hardness of the young plants, when they first come up. In our locality, the black flea is almost sure to eat the ten-

der green leaves when they first make their appearance. Our neighbors have several times tried considerable fields of it, but though it would come up nicely, this flea would take off almost every plant. In other localities, we have had reports of bountiful crops of seed, and honey enough so that the bees worked beautifully in the surplus receptacles. Like buckwheat, it commences to blossom when quite small, and continues in bloom until the plant has gained its full height. As it will bloom in 20 days after sowing, it may be sowed almost any time in the summer; but it is said to escape the ravages of the flea best, when sown between the 20th of June, and the first of July. The ground should be very finely pulverized, for the seeds are very small. It is sown broadcast, 3 lbs. of seed to the acre. There is a steady and good demand for the seed, for feeding canary birds, as well as for the manufacture of oil. Bee-keepers should contrive to induce seedsmen to have all these seeds raised near them, or on their own grounds. Dealers in bird seed should also be furnished in the same way, for these things are often raised in large quantities, where there are few, if any, bees to gather the honey. From what I have said on POLLEN, you will understand that both parties would be benefitted by the arrangement.

RASPBERRY. Where this fruit is raised largely for the market, it is quite an important honey plant; but it would hardly be advisable to think of raising it for honey alone. The bees work on it closely in our locality, but we have not enough of it to judge of the honey. If bee-keepers and growers of small fruits could manage to locate near each other, it would probably be an advantage to both. Langstroth says of the raspberry honey: "In flavor, it is superior to that from white clover, while its delicate comb almost melts in the mouth. When it is in blossom, bees hold even white clover in light esteem. Its drooping blossoms protect the honey from moisture, and they work upon it when the weather is so wet they can obtain nothing from the upright blossoms of the white clover."

In our locality, it comes in bloom just after fruit blossoms, and just before clover, so that large fields of it would be a great acquisition indeed.

RATAN. This plant has been several times spoken of by our southern friends, and it is probably quite an important honey plant. Some seed has been sent me, but no plants have as yet been raised. I will give farther reports, as soon as I can.

Heads of Grain, From Different Fields.

A QUEER BEE TREE.

THIS has been a good season for bees in this locality. I started with 2 hives in spring and increased to 9, partly by artificial swarming, and partly from bee-trees, and took 212 lbs. of honey. As they were nearly all young swarms, they had just about time to build up for winter, so that most of the honey was from the old stocks, one of which gave 100 lbs. of honey besides about 30 lbs. left for winter, and one new swarm. One young swarm gave 42 lbs. I purchased 2, dollar queens in June, and introduced them to young swarms, by taking frames of brood and bees from other hives, and putting into empty ones, and putting queens in with them. From one of my Italian queens, I raised two young queens, which mated with black drones, so that I now have 2 Italian, 2 hybrid and 5 black swarms. I made all my hives by hand, but I find it rather slow work.

We have the queerest bee-tree here I have ever heard of. Early this summer, a swarm of bees took up their abode in one of the castings of the iron bridge which crosses the river at this point, on the I. C. R. R. It is a casting almost as large as a cook-stove, and hollow inside. The converging rods and braces enter here and are fastened, there is a cavity inside, which they have appropriated without asking leave of anyone. Did you ever hear of such a queer bee-tree? J. R. YOUNG.

Oglesby, Ills., Dec. 9, 1878.

A FRAME FEEDER.

I wrote you some time ago, about my idea of a feeder, which was to take a wide frame, such as you use for sections, and to box with light stuff, say $\frac{1}{4}$ to $\frac{3}{4}$ thick, from the bottom to within 2 inches of the top. Fill it with sugar, and hang it in the hive as you would an ordinary frame. Should the bees manifest any disinclination to eat the sugar, just pour in a pint of water and they will soon put it all away. This I prefer to the trouble and annoyance of making candy, syrup, etc. When I wrote you before, I had not given the above a trial, but since then, I have done so with perfect success. This same feeder can be made tight enough to hold honey or syrup, by waxing the seams, and in this case, I use a float which will fit in easily, but not too small, to keep the bees from drowning or getting daubed up. Try this, and when you do, make the feeder of tin which will be still better than wood.

New Orleans, La., Dec. 11, '78. GEO. W. PALFREY.

The plan given above is not entirely new. The moistened sugar will do very well with one who is careful, but with the average A B C scholar, bees would be drowned, the trough get to leaking, and I fear it would prove to much machinery. If left in the hive, a comb would be pretty sure to be built inside of it. I am not much in favor of feeders to hang in the brood chamber, for they are so sure to be forgotten and left.

QUEENS FOUND ON THE BOTTOM BOARD, AND WINTERING WITHOUT A QUEEN.

My father-in-law, in moving his bees into the house to-day, found the queen of one of his best swarms, on the bottom board, on a chunk of snow, chilled. He took her into the house, she came to, crawled around a while and died. The swarm is a strong one, but has no brood or eggs; what will become of them? Can he get a queen from you now? Will the bees all die before warm weather? If a queen could be got through, he would send for one. If the swarm will live without a queen till spring, he will wait and get an Italian of you.

Acadia, Wis., Dec. 9, '78.

E. A. MORGAN.

There is very little doubt but that the queen found on the bottom board was a superannuated one, and that a young and healthy one is in the hive. There would be no eggs and brood in the hive any way, at this time

of the year, nor would you readily find the queen on account of her small size now, as I have explained before. Even should they winter without a queen, it will do no harm. When spring opens, I think you will find eggs and brood, all right; if you do not, give them a frame of brood and see if they start queen cells. If they do, procure a queen for them then, or let them rear one, as soon as she can be fertilized. If the first one they raise proves a drone layer, kill her, and have them try again.

SALT FOR BEES.

I placed an old salt barrel (I mean one which had contained salt for some time) on its side, on some stones, in a small creek which passes about seven rods to the north of my apiary. It was placed to one side of the creek, where the water scarcely moves, with open end to the south, and a little elevated. The barrel was lowered just enough to let the water rise an inch or two in the deepest place, while it was very shallow around the edges. By throwing in a few floats, not many bees will be lost.

They came to this in large numbers, and in cold, clear days, would dart from their homes to this watering place, and seemed to enjoy loading up in the sun, while it was cold and windy outside. I am quite sure that this arrangement was a decided advantage to the bees, furnishing salt, water, and protection.

I have tried salt in different ways, and think that salt water for bees must be quite weak to suit their taste. S. T. PETTIT.

Belmont P. O., Ont., Canada, Dec. 13th, 1878.

Last spring, I noticed that my bees were taking water from where salty dishwater had been thrown out. I then sawed off the bottom of a tight salt barrel about six inches from the head, put in it one pail of water, one handful of salt, and some sticks of wood for the bees to light on to keep them from drowning, and set it near where they were working. The dish was crowded with bees from spring until fall, a continual string coming and going on all days when the weather would permit. It is very essential that the water should contain the right amount of salt, and I think every one should furnish their bees salt in a similar manner. By so doing, we may save them the flight of miles in search of it, and even then they might fail to get the needed quantity.

Eucled, O., Dec. 13th, '78.

F. C. WHITE.

I find that my bees will use neither dry salt nor strong brine, but that they collect, with eagerness, the dew from the grass where briny fluids have been sprinkled. This shows that they want their salt in the form of a very weak brine. The bee-keeper can supply this by filling with water, barrels that have contained brine; such as fish barrels. These should have floats placed in them for the bees to rest on while collecting the water; the best floats for this purpose are made by sawing slits in boards, as described by Mr. Langstroth.

Kansas City, Mo., Dec. 13th, 1878.

E. M. HAYHURST.

Just take a fish keg, brine and all, fill it up with water, and set it near where your bees water, and if your bees are like mine, it will be literally covered directly.

Atlanta, Ga., Dec. 12th, 1878.

A. B. SMITH.

KING BIRD NOT GUILTY.

You ask for evidence in favor of the king bird, and as I have some evidence which may be in its favor, I will make it known. Last June, on different days, in the afternoon, when the bees were flying briskly, I could see the king birds catching them, so I shot at different times four birds, and found their gizzards crammed full of *drones*, and no other bees among them. Years before this, I have shot as many as one dozen when they were perched near my bees, and I never before could find a bee within them, but they were usually filled with various kinds of insects.

Eucled, Cuyahoga Co. O. Dec., 12th, '78.

F. C. WHITE.

Your experience is quite different from others, friend W. I should be very glad indeed to hear it was only drones they catch.

BEE CULTURE IN THE SOUTH.

I never see in GLEANINGS anything from Ala., and but little from any State South. Is it because bee culture does not prove profitable South? I know many here who have attempted it, and in a few years given it up. It seems that in a land of mild winters, and flowers from March to Nov., they would prove a success; but judging from the experience of others, failure, from some cause, seems to result.

Now, will you please give us your experience and views in full, on bee culture in the South, to aid us in our efforts. Our bees this season have nearly all died from starvation, in July, Aug., and Sept., while we had flowers in plenty. During these months it was exceedingly dry and hot; was this the cause of this fatal result? The same result attended the box gum and movable frame hive.

Give for our aid, your views and information on southern bee culture. W. R. WHITMAN.

New Market, Ala., Nov. 28, 1878.

Why, my friend, you have answered your own question most fully, as I understand it. Bees are liable to starve, even in July, in any country that I know of, and if the bee-keepers are so thoughtless, or lazy, perhaps I should say, as to let them starve, it is certainly no fault of the bees, or season either. They must be looked after, daily, as you would look after your horse and pig, and you will soon find that they will gather enough for themselves, and you too. From reports given all through our back numbers, you will see that bee-culture has prospered in the South, nearly, if not quite, as much as anywhere else. Bees seem to thrive only under faithful and constant care, and I am frequently at a loss to tell why bees in old boxes starve while in the same neighborhood, by careful management, they will give their owner 100 lbs. of surplus, and get enough to winter besides. When I got the bee fever right here in Medina, I was told that bees were not so profit: that a dozen colonies gave not a lb. of surplus, and then starved in wintering besides. You want to get waked up, my friend. When you are so much interested that you can study bee books until you fall asleep at night, and then be up before daylight making hives, you will find your bees have waked up, too.

COMB BUILDING BETWEEN UPPER AND LOWER FRAMES, ETC.

I succeeded well with small sections, having taken 3,000 lbs. of honey from 28 colonies, $\frac{1}{2}$ extracted. The greatest trouble was with their building comb between upper and lower frames, and with only $\frac{1}{4}$ inch space between frames. I have done well with fdn.; the thinnest sagged badly in hot weather. The imported queen I got from you produced very fine bees and queens, but she was old and so badly mutilated, that they tried to supersede her all the time. She died in Oct., without any eggs, brood, or young queens.

FRANK L. DOUGHERTY.

Indianapolis, Dec. 3, 1878.

The trouble with comb building between the upper and lower frames is a difficulty, we have never got rid of entirely. Some stocks will not do it, when the space is reduced to $\frac{1}{4}$ in., but others will fill it up solid, as fast as you may cut it out. Mr L. has suggested a honey board; without question, this would answer, but I am very sure it would hinder the bees from going up into the boxes so readily. Friend Wilkin, in Cal., wrote about using a sheet of enameled cloth, but my objection to this would be the same. Making the top bars of the brood frames so wide that the bees could just get between them, like the bottoms of the broad

frames, I think would make it all right. Friend Townley, the chaff man, uses such top bars, if I am correct, and says he likes them. It is a good point for our A B C class to experiment on; but before you alter all your frames, I would advise glueing or brad-ding small strips on the sides of the top bars, then if you do not like them, you can pull them off again.

It is pretty well settled that thin fdn., without walls, will sag worse than that made heavier, and with good walls. Your queen may have appeared old, but I do not think she was in reality, for Tremontani has assured me that all the queens he has sent were young and prolific.

WATER WHEEL FOR HIVE MAKING, SAND IN PLACE OF SAWDUST, AND ONE STORY CHAFF HIVES.

I have been "walking around the" stove, and have been thinking about a buzz saw. I think Mr. Hutchinson's home made saw is just about the thing, but then when a body has not much time or money either, what can he do? Now there is a little brook close by, and I would like to—well, I won't say just what. My friend, couldn't you tell us how to make a small water wheel? and perhaps you could get up a cheaper mandrel, for I have great faith in your ability to improve almost any thing in our line—bee line. I am sure there are many readers of GLEANINGS, situated somewhat as I am.

Would sand answer the same purpose as sawdust in the apiary? I have heard that it is used in Long Island, to some extent, instead of alighting boards. I have just finished a chaff hive by the A B C. How would a single story chaff hive do? It could be finished on the top to receive a Simplicity cover, or a Simplicity hive as a second story. For winter, a Simplicity hive with the chaff cushion could be used, or a chaff Simplicity cover made several inches high and packed with chaff. Thus we need have only one sized cover in the apiary. WILLIAM MOREHOUSE.

Fairfield, Ct., Nov 11, 1878.

In passing through York State, I saw a waterwheel near an apiary, and from the looks of the surroundings, inferred that it was used for hive making. If you can get fall enough to your brook by damming it, and the stream is a permanent one, you have probably got the best and cheapest power in the world. I would visit water mills near by, to see how the wheels are made. A home made, overshot wheel is a very simple affair, and any bee-keeper should be able to make one. We are making mandrels now, but a cheap mandrel, that is, one made so cheap as to be poor, is rather an expensive thing to attempt to do anything with. Sand will do very well, where it is plenty and near by, but weeds are rather more apt to grow in it than in sawdust. Single story chaff hives can never afford the protection for winter, that a permanent upper story does. The cracks where the joint is will permit frost to get in, at least to some extent.

COST OF USING SECTION BOXES.

How much will it cost to furnish section boxes, broad frames, and fdn. starters, for 6 hives? [already put up ready to go on the hives, \$10.50, as per list.] I should not trouble you to answer this, but I am a new subscriber and have never used any of these things. I have the old fashioned L. hive, and from 4 swarms I took 384 lbs. of comb honey this season, but it is in such shape that I can not sell it, so I want to join your A B C class and learn how to put it in salable shape.

J. P. BYRNE.

Fosters, O., Dec. 12, 1878.

As several friends have asked how to put sections on their old L. hives, and what it would cost, I have thought best to answer at length. The old style Langstroth hives, to

be used with boxes on top, usually have a shallow cap made of $\frac{3}{4}$ stuff, with the cover nailed on permanently. As they are only about 8 inches high, they would not take a frame of 8 sections, even though we make the top movable. It is true, they will hold the 3 box case without trouble, but as a single tier of boxes is insufficient to get the best results from any fair colony, I would hardly recommend them. Your better way will be to set these shallow caps aside, and have some upper stories made to hold frames, with a movable cover. As a double end must be put in these upper caps, they are rather a clumsy and complicated affair, and I often think I would rather set the whole hive aside, and use the Simplificities, just because the upper and lower story are always alike. This upper story with its cover should cost you about 50c., and now you are ready to use the section boxes. It needs 7 broad frames to fill an upper story, and the cost of these with section boxes fitted with fdn., separators, and all, will be 25c. each, or \$1.75 in all. This would make, all together, \$2.25. This is quite an expense, it is true, but they are all permanent fixtures, except the section boxes and fdn. These, as fast as filled, are to be replaced by new ones, and as the 7 frames contain 56 sections, you will have an expense each year, of about 56 cts. If you use the fdn., you will need to add to each about $\frac{1}{4}$ of a cent. Therefore, to use sections, the expense the first year will be something like \$2.25 per hive; but each year after that (supposing you average 50 lbs. of comb honey per colony, which is a fair estimate all seasons and latitudes, beginners and all), it will require only about 62c. per hive, per year.

After receiving the hive you sent, I got me up a foot power saw, and have made 20 hives all but the frames, and intend to make about 30 more this winter; that is, if my capital holds out. Bees in this section did very poorly this season. I had 4 swarms in the spring in common box hives, and transferred one the last day of June, to the hive you sent. The other 3 swarmed twice apiece, and from the 9 swarms in box hives, I got the enormous pile of one box of surplus honey, weighing 5 lbs., and from the single story simplicity that you sent, I took 18 nicely filled sections. This swarm was, I considered, the poorest I had, until about buckwheat bloom.

Pembroke, N. Y., Dec. 16, '78

W. P. HALL.

There has been a little criticism in regard to the way I have of advertising my own wares. Please consider, my friends, that I teach how all these things are done, and that, in one sense, the wares are as much yours as mine. The simple fact that friend H. succeeded in making his own foot power saw, and his own hives, will encourage others to do the same, and it does me just as much good to hear that you have copied my hives, and thus saved the expensive freights, as it does to get an order.

It may be I have stated it too strongly, but I do like to hear that you are succeeding with your own shops and tools. The fact that so much more honey was secured from one colony than from the other 9, does not advertise my wares alone, but the hives, skill, industry, and enterprise of friend H. It also indirectly advertises GLEANINGS as his teacher. A great part of GLEANINGS is made up of articles like his own, from other

beginners. Perhaps it also advertises my management a little, and really, my friends, I do not know how to help this, if I would.

STIMULATIVE FEEDING, WINTER PACKING, BROOD FRAMES KEPT APART, ETC.

I am one of your A B C scholars, and I come to you for information. In A B C, part 2d, you say, for brood raising, we should feed a little every day. How would I do it in cold weather, with the Dunham feeder, without opening the hive every day?

My hives are something like your Simplicity with a division board at one side, and a moss cushion over the frames. I have set my hives on a board platform 4 inches from the ground, with board back and roof, and have packed leaves between and behind the hives about 4 or 5 inches thick, and intend to put leaves or straw over the top and leave the entrance open. The hives are facing east.

At what time should I begin to feed for brood raising? Would candy or syrup be best? I want to set out trees along the roadside next spring, to benefit the bees; what kind should I get to keep up a succession of blossoms as long as possible, and that would not send up suckers and run all over the meadow and field? I can get linden and soft maple very handily, within a few miles. Would raising small fruits benefit the bees any?

To keep the frames from crushing the bees when taking them out and into the hive, I drive a headless shoe nail in each side of the frame, near to the bottom, and let it stick out about $\frac{1}{4}$ of an inch. I find this a great help.

AUG. J. HINTZ.

Lemont, Ills., Dec. 5, 1878.

You do not want to start brood rearing, before March 1st, and many seasons, perhaps April 1st would be as well or better. The Dunham feeder is not well adapted for stimulative feeding, but for giving colonies which are nearly starving a good lot, all at once, and with little trouble. I fear your packing is too far away from the bees. Remember what I have told you so often, that your bed clothing, in a cold night, does not want to be over the tops of the bed posts, but close and snug around your body.

The flour candy is the best of any thing I know of, for brood rearing. I would by all means take the linden trees. Nails have been used a great many times as you suggest, but everybody seems to get tired of them and pull them out, sooner or later.

I have seen almost all kinds of powers through GLEANINGS, but I have not seen a power to suit me. Now the power that I want for sawing is a wind mill power, and if you will please send me a picture of one with directions for making you will not lose the confidence of one of your readers. I have a plan for one, and if you do not know of any, I will send you a drawing of it some time.

GILBERT SHARP.

Fullers Station, N. Y., Dec., 16, 1878.

My friend, a few years ago, it was my especial hobby, to see how much, and how many kinds of machinery, could be run by a wind mill. All our bee-hive machinery was run, saws, etc., and even GLEANINGS itself was printed by the power of a 17 foot wind mill. Now while the mill furnished a great deal of power for a very small expense, or rather at no expense at all, if we should keep count of the time wasted in waiting for power, compared with what might be done with an engine or water mill, that will send the saws right along, it proves an expensive power. Home made wind mills have been made all over the land, but they can rarely be made so as to stand storms and gales, unless at more expense than to buy them of the regular manufacturers. The U. S. Wind-mill Co., Batavia, Ills., make, perhaps, as good a mill as can be made for the money.

MIGNONNETTE AS A HONEY PLANT.

Can you tell us how we are to tell when we get that variety of mignonnette that is recommended for bees to work upon? I bought some seed of this last spring and sowed it. The plant grew about one foot high, ripened in Sept., died down, then sprouted and came up again, and to-day it is green and in bloom. The bloom is about the size of the head of an ordinary pin and is wholly worthless as a bee plant.

C. BATES.

Beda, Ohio Co., Ky., Dec. 10th, 1878.

Yours is the first unfavorable report of mignonnette I have ever heard, friend B. The tall varieties yield the most honey, I believe, but usually the bees work on all kinds. I think yours must have been very busy on something else, or perhaps, like most other plants, it does not yield honey every season. We can supply the seed of the grandiflora this season, at the same prices as the common.

FROM THE EGG TO THE PERFECT QUEEN, HOW LONG?

My imported queen, referred to in GLEANINGS for Nov., was introduced to her bees the same day that she was received. The next morning I found her depositing eggs. Within an hour or two of sixteen days from this time, I had queens hatching, that were raised from these eggs, and when I first saw the eggs they could not have been more than fifteen hours old, even if the queen had commenced to lay immediately after she was turned loose. The queen cells were built by a full colony during pleasant, warm weather, at a time when the bees were gathering scarcely any stores. They were hatched in the lamp nursery, in which the temperature was kept at about 95°.

E. M. HAYHURST.

Kansas City, Mo., Dec. 13, '78.

Please state how long a drone will live. I think they will live as long as a queen.

A. S. SMITH.

Atlanta, Ga., Dec. 12, '78.

I have generally supposed that drones lived about as long as workers, and little, if any, longer. I have never known drones to winter over, although they are sometimes hatched out during the winter, and are found in the hives in the spring. It is true, we can keep them in queenless colonies, but they seem to be gone, when they are about a month or two old, even during pleasant weather. Can our friends tell us anything about their longevity?

DRONES IN QUEEN CELLS, ABSCONDING, ETC.

I saw one colony go to the woods, leaving a hive full of comb, eggs, and brood, and I am still wondering "what in the dickins possessed them." Saw a colony, belonging to a neighbor, with plenty of stores, attempt to leave at least a dozen times in as many days. They swarmed out about 4 o'clock P. M., and started in the same direction every time, but the queen's wing being clipped they had to return.

I saw brother Plunket at the state fair, with his bees and improved Simplicity hive, and exchanged a few ideas with him. Brother Moon was there also, but he was so engaged in sight-seeing that I could not overtake him, although he goes on crutches.

Hawkinsville, Ga., Dec. 7, '78. J. B. MITCHELL.

It seems probable that live drones sometimes hatch from queen cells. Bees do, at times, desert their hives when it seems difficult to assign any good cause.

HOW A BEGINNER SUCCEEDED WITH THE SIMPLICITY HIVES, SECTION BOXES, ETC.

Two years ago, I had several stocks in Quinby hives, suspended frames. During the winter, I made some new hives with closed end frames, thinking to adopt that style as the best hive for surplus honey in boxes. By subscribing for GLEANINGS, however, I became interested in the plan of having honey stored in section boxes, and accordingly made an upper story for 2 of my Quinby hives and filled them with section boxes. From these 2 hives

I obtained nearly 150 lbs. of surplus honey, and a large swarm. This was doing remarkably well, and the honey was in the best possible shape, pronounced "just the thing" by every one that saw it. The closed end frame which I tried this season was not well adapted to section boxes, and besides had other objections; so I decided that the Simplicity was the hive for me, and sent to you in Oct. last for a sample hive to work from. I made several hives and transferred two colonies last fall, but found that to make the hives to advantage, I must have a circular saw. I have a tread power which I use for cutting feed for my stock, and I took the cylinder shaft of an old thrasher, which belonged to the tread power, to Buffalo, and Frank & Co. put an arbor on for a saw. They did a good job, and when I got the tables etc. rigged, it worked very true and well, a great deal better than I dared expect, and I was surprised at the amount and variety of work one could accomplish with such a saw.

Some of my neighbors wanted a few hives, so I planned to make 30, thinking that number would be a great plenty for all demands this season; but when May came I transferred 17 swarms for other parties into the Simplicity, and with what I wanted for my own use my stock of hives was soon exhausted. I kept on making, however, and up to the present time have sold 67, and used myself 26, making 93 two story hives in all. All the swarms I transferred did well, averaged, I think, 60 lbs. of honey and a swarm; but I got my hands too full, and was unable to supply sections as soon as needed, or some would have got more than they did. All that bought hives are however satisfied, and the reputation of the hive stands high.

If bees winter well, I expect a demand next season which I am taking steps to supply, intending to manufacture all I can this winter. Many thanks to you, and your journal, for directions and instructions in the bee business, in which I have become deeply interested, and in which I have been successful beyond my expectations.

I have made 10 chaff hives, and put swarms in them for trial this winter. The only objection I see to the chaff hive is the difficulty of cleaning the bottom board, and why would it not be a good idea to make the cover to the simplicity after the pattern of the chaff hive cover? Fdn., I consider a necessity to the most profitable management of bees, and have used and sold with hives some \$25.00 worth.

Honey in sections has sold for 18 to 20 cts. for clover, 15c. for buckwheat.

C. C. LONG.

Williamsville, N. Y., Nov. 14, 1878.

BADGES FOR BEE-KEEPERS.

Would it be an extravagance for bee-keepers to wear a badge, or pin, appropriate to their calling? If we had a nice, golden, Italian queen, life size, mounted upon an imitation piece of comb, say of silver, wouldn't it look "perfectly killing," as the girls say? We have masonic pins, trade pins, and pins for all branches of human industry. I suppose you have heard of the chap (a carpenter) who wanted an appropriate pin, and chose a masonic pin with its square and compass. He would have liked a hand saw on it; but what was the G for? "G—G—lemme see; G stands for—for—gimlet; that's it; square, compass, and gimlet; I'll take it."

You are a practical jeweler; give us the pin—the queen-bee pin.

J. H. M.

Hartford, N. Y., Dec. 16, '78.

Although I have been for 18 years in the jewelry business, to tell the truth, I have never been much of a friend to jewelry, or badges. I do not know that I should wish to criticise the taste of others, but whenever I receive money for jewelry, it gives me no such satisfaction, as it does when I get it for a bee hive. I could make the pins you mention, without much trouble, but should I get up something remarkably neat and tempting, and thus encourage my A B C class, in spending their money in such a way, I am sure I should not have a really clear conscience. It may be well enough for those who have the money to spare, but as by far the greater part of the letters I receive speak of close economy, and trouble in making expenses come inside of the income,

I cannot think it best. I know full well how new jewelry "takes," and often induces those to buy who cannot afford it. Deliver us from temptation.

There is another view of the case. When away from home, on the cars, etc., it would be very pleasant to know all the bee folks. A pretty little badge would answer the purpose, and a queen bee might be made of silver or of a still cheaper metal, nickel plated, that would answer all purposes. What do the friends think of it? Please bear with me a little farther; suppose I should get up a very neat, silver, queen bee, that could be sold for 25c., just the price of an A B C book. The latter would talk to you, would suggest, and draw forth ideas, but the pin would—I guess I will let you finish the sentence, for I might forget, and get to arguing the case.

GOOD AND BAD HONEY, SMOKING BEES WHEN CARRYING THEM OUT, EMERY WHEELS, ETC.

What is the matter with our western honey that you are finding fault about? Now, Mr. Root, I consider that we can produce just as good honey west as you can east. Buckwheat honey is as poor in quality as any I know of, and there is a large variety of honey producing plants here. It seems to me you ought to be a little more cautious how you go back on us western bee-keepers. Now I will tell you something you do not know. It is for the benefit of those that winter their bees in cellars, or indoors.

Those that have had experience in carrying bees out when it is very warm know that bees will sting. After being stung somewhat in that way, I began to think why something could not be done to stop it. So when I commenced to carry out my bees, they commenced to sting unmercifully. It seemed as though their stings were longer than when I put them into winter quarters. I guess they had grown some. I called aloud for my boy to get a kettle, and I made a smudge in the cellar. Soon all was quiet; then I had quiet also, and carried them out to my heart's content. When they roused up, I gave them more smoke. Now I should hate to be deprived of its use in that line.

One question about emery wheels: can you use them to a good purpose on small circular saws, 6 in. in diameter? Something ought to be used besides a file, or else a different shaped file, to give it more "throat," to keep it from clogging.

Eureka, Wis., Dec. 16, '78. ALBERT POTTER.

I beg pardon, friend P.; I did not mean to carry the idea that you did not *have* nice honey. I only mentioned it to show that honey not pleasant to the taste is not necessarily adulterated. Your plan of making a smudge in the bee house or cellar, when taking bees out, I think, is a good one. The emery wheels we advertise are purposely for keeping 6 inch saws in order, and a saw can be made to cut beautifully, without any file at all. The emery wheels are also much cheaper than files, but it takes people a good while to get over old notions.

USING SECTIONS ON BOX HIVES, FDN. FOR HONEY FOR TABLE USE, LATE TRANSFERRING, ETC.

I thought of using your 3 section cases on my box hives, with the 7 in. Langstroth cap. The difficulty to my mind is, there are but 4 holes in top of the box hive, 1x2 in., which would not be sufficient, I think, for sections; it does not seem practicable to make more holes with the bees in. Also, I have been in the habit of using 4 and 6 lb. honey boxes, and excluding the bees from clustering in the top of the cap; but in your arrangement, I do not see but they would have free access to the whole cap. The comb fdn. is a new thing to me, which I think quite an acquisition, but is it in anyway detrimental to comb honey, for table use?

I do not like the trouble of transferring to some other hive, as Mrs. Lizzie Cotton, or Mr. as the case

may be, advises us to do, with the whole apiary, as late as Oct., which, from my experience in bee-keeping, led me to think all was not right.

Lockport, N. Y., Dec. 17, 1878. H. KINGSBURY.

Your bees will work in sections on the box hive, as well as in your old style boxes; but I think you will be the gainer by taking the whole top of the hive off, and replacing it with strips having $\frac{1}{2}$ inch space between them, just right to match the spaces between the bottom bars of the 3 box cases. If this is too much trouble, just set the 3 box cases on the combs left exposed. With a smoker, it is not at all difficult to take the top off from a box hive, after the combs are old enough so they will not break down. Fdn. is used very extensively for comb honey, and few have ever complained of it. If the fdn. is made very thick, the bees sometimes leave it without thinning. With the thin fdn. made now expressly for comb honey, no one will probably be able to tell the difference. Never allow the bees to get between the cover and the boxes. To advise beginners to undertake to transfer an apiary in Oct., would be quite a grievous error, indeed.

WHAT MADE THE BEES DIE?

One of my near neighbors has about 22 stocks of bees, and 2 of his best swarms—first swarms—have died, and 2 or 3 more are most all dead. I have examined the combs, Quinby size, and don't see what is the trouble. They seem to have died quite suddenly. There is no dysentery, and no bad smell. Their combs are bright and nice, but still, the unsealed honey don't look just right; it seems to be pushed out of the cells, and not as thick as it is generally. Can it be the honey gathered during the dry spell last summer, or the honey dew which they got, that caused the disease? This morning, another of my neighbors came over for me to look at his bees. He had 3 stands and we found one of his "gone up," too; this was also a first swarm. Old swarms and after swarms seem to be all right yet. My bees are all right so far. When I first heard of the trouble, I went at my hives, and took out the combs, to see if there was much unsealed honey. I was going to throw out all the unsealed, but I found but very little, and so I took out all combs that bees did not occupy, put in division boards, filled in the empty space with chaff, and took off honey boards, and hiled the caps with chaff, too. Did I do right?

King's Corners, Wis., Nov. 30, 1878. H. G. KING.

P. S.—The bees have not gathered any thing from cider mills, sorgham or grapes; for there are none within 5 or 6 miles. They have died in the cells, on the top of frames, and among the combs, as if of starvation, yet they have enough stores. H. G. K.

The above was sent us by friend Sayles, of Hartford, Wis. I should pronounce it the genuine old bee disease, and give the cause as bad stores, as suggested. The honey pushing out of the cells, with a thin foamy look is just it, exactly. The only remedy I could suggest is what friend King did with his own bees. Some frames of sealed honey, gathered earlier in the season, if they can be procured, will sometimes stop the mortality. A good chaff protection, close to the bees, has seemed to save them, several times, even with their bad honey.

CLIPPING QUEENS'—STINGS.

Now please don't laugh, but could not two or more queens be induced to occupy one hive, if the extremity of the sting is severed? So we might run mammoth hives and stocks, and have many other advantages. Would it affect the longevity or fertility of queens?

S. D. HASKIN.

Your idea, my friend, is not a new one, but I believe no one has as yet ever succeeded—

ed in putting it into practice. The great obstacle is that we know of no way to induce a queen to protrude her stinger, unless it is a royal combat. Besides, if queens were in the habit of wasting much time in trying to kill each other, they could not lay many eggs. I am afraid, too, that the bees would take sides, and do the killing as they often do, by balling one or both of the queens.

SIMPLICITY SECTIONS.

I took some 1 lb. sections to our county fair, where they were admired by all. Some said "That's a success," and "How did you get it in those little boxes so nice and straight?" Others said "That will take the premium;" and sure enough it did. In Oct. GLEANINGS, you speak of sending honey to Chicago; I guess there was not enough for all, because a gentleman here from that place who saw some of my 1 lb. sections, remarked that he never saw the like before. He ordered some at once. I also filled a small order from Indianapolis, and what is strangest of all, I had a small order from Toledo O., but I could not fill it. How is that? JOEL TILMAN.

North Manchester, Ind., Dec. 16, 1878.

SCALES, SALT FOR BEES, PRESERVING COMBS, QUEENS' STINGS.

If you go into manufacturing honey scales, use the spring, with 6 or 8 in. platform over it, clock face, dialled 24 lbs., and the index hand movable on its axle, like the minute hand of a clock, to move forward and backward. The screw is too slow work.

My bees use the lump of rock salt placed in the portico. I water my bees to keep them from the well bucket; I put a handful of salt into a jar, fill it with water, and cover with a plate. When inverted, fill the plate with sand, and set it in the shade. I one day placed a small lump of salt on the sand; it dissolved, and most of the bees sucked from the salted place.

How shall I preserve my frames of empty comb? If filled with salt water, do you think it would injure them for brood comb?

Several times, I have held a queen bee in my closed hand, and never knew one to sting, but once knew of one's biting; she bit, and was turned loose quickly. Your correspondent, W. A. Eddy, must have been bitten on the lips. I think the mouth a queer place to hold queens. J. A. NELSON.

Bibb Co., Ga., Dec. 10, 1878.

Keep your combs dry and a little distance apart, and they will keep safely any where almost. See Bee Moth, in A B C. Bees wax, when moistened, soon decays; although it will hold honey any length of time, water slowly destroys it.

I had 4 new swarms and 2 old stocks out in the yard, and discovered yesterday that one of the former was frozen. I moved the balance down into a dark, dry cellar, where the thermometer registers constantly about 41°. Is this too warm for them? and shall I allow cushions on top, as I now have them? ED. D. HECKERMAN.

Bedford, Pa., Dec. 19, 1878.

Should the thermometer stand many degrees below zero even, your bees would not freeze, if other conditions were all right. I fear their brood nest is too large, and that they got away from their honey. Leave the cushions on, just as you have them. The temperature you have is about right.

Please send sample copy of GLEANINGS to John Lemley, Knobnoster, Johnson Co., Mo. He has a patent moth proof, non-swarmling hive, for which he paid \$18. I call it a big swindle.

Friend Root, I cannot come up with some of our brother bee-keepers, but think I have done very well this year. Apr. 1, 1878, had 40 swarms. Dec. 9, 1878, have 53 swarms. Have taken 5,400 lbs. of honey, extracted, and selling at 6¼c. at home.

W. B. COLLINS.

Arrow Rock, Saline Co., Mo., Dec. 12th, 1878.

MORE ABOUT SALT FOR BEES.

You say you don't get your bees to take salt or salt water. My bees swarm on a trough filled with water and corn cobs. Fill the trough with water and cobs, then sprinkle half a pint of salt among the cobs. This much salt is for a common sugar trough. ROBERT QUINN.

Shellsbury, Benton Co., Iowa, Dec. 13, 1878.

GLASS FOR HIVES, A PRACTICAL TEST OF THE VALUE OF FDN., A CHAPTER ON ROBBING, ETC.

A LETTER FROM FATHER AND SON.

Some 15 or 20 years ago, quite a large number of swarms were kept in this town (Hamilton), mostly in the old fashioned box hive. 9 or 10 years ago, Mr. Sisson introduced a patent hive with frames, and glass on all sides. They looked very nice, and we all fell in with them; but before spring came, we fell out, bees and all; I lost all I had. I purchased a few colonies the next season, in box hives, and transferred them to frame hives. I took out the glass from the glass hives and replaced it with inch boards, and have had very good luck since. I have now 54 swarms. Part of them are Italians.

To test the value of fdn., I used 2 young swarms. No. 1 came out the 5th of July, and I put them into a hive without fdn. No. 2 came out the 10th of July, and I put them into a hive with all the frames filled with fdn. The result was that No. 1 had 10 lbs. of cap honey, while No. 2 had 44 lbs. I have one colony in a chaff hive (or my wife has) from which I took 150 lbs. of comb honey. I took 1,000 lbs. in sections, that weighed from 1¼ to 3 lbs. per section, and sold at home for 18c. A honey peddler came through town, and sold for 15 and 16c. One of my neighbors purchased because it was cheap, and has it now in his house. He says it is not honey. He came here, and said he wanted some honey; after eating a little, he said that was honey that was honey. He bought of me and gave me 18c., saying it was cheaper than to give 15c. for such stuff as he had at home.

Now about bees robbing. I will relate what took place here. I had 300 or 400 lbs. of honey in a safe; one day, the door was left open and before it was noticed, quite a lot of bees got in. As I could not get them out, I closed the door. The outsiders would gather in clusters on the outside, and come and go. I watched them closely, and soon ascertained the cause. I found that the bees inside of the safe would fill themselves with honey, and feed those on the outside, by putting their bills together, and as soon as they got their fill they would leave for their hives. They kept it up till night, when I opened the door and got rid of them.

PREVENTING BEES FROM ROBBING.

My way is this. I first find the robbers, and change places with them. Then I change the frames, or a part of them, with all the bees hanging on them, so that the robbers, or a part of them, are in the robbed hive on their own comb of honey and brood, and the robbed bees, or a part of them, are in the robber hive on their own comb, and they are so mixed up that they have enough to attend to, to straighten matters at home. I have not yet failed of stopping the robbers. ALBERTO M. SAWDY.

BEE BURGLARS.

I had a swarm of bees in a box hive, well filled with honey. Bees began to rob. I tried to stop them by closing the entrance, so that only one bee could enter at a time; but that was not effectual. I finally closed it entirely, and to prevent them from smothering I bored some 2 inch holes, and covered with tin made full of holes with a nail. I had as many burglars inside the hive as bees that belonged to the hive. I watched them for a number of days, and those tins were covered with bees from morning till night. I found that they were coming and leaving all day long, and that the tins were covered with bees inside as well as outside. In short, I found that the burglars inside were handing out to those outside. After a week or more, this thieving stopped. I went and turned up the hive and found the honey all gone, and the fools inside all starved to death. I say a bee has no calculation for the future. Now, how is that "for high?" ELI W. SAWDY.

Poolville, Madison Co., N. Y., Dec. 7, 1878.

Our Homes.

If any man will come after me, let him deny himself, and take up his cross daily, and follow me.

IT was during the morning service on Sunday, and toward its close, when I began meditating that I should have to go on foot to my afternoon Sabbath school, because the roads were so very rough it would injure my new buggy more than I could afford. Well, if I went on foot, I should have barely 15 minutes to get my dinner; for to meet my appointment on time (I am always on time, unless some very unlooked for event hinders), I should have to start out the very moment Sabbath school in our church was adjourned. It was quite a walk to my home, and I therefore was under the necessity of going out of church just as soon as they began singing. The sermon and closing prayer were one of our minister's happiest, and gave me a renewed zeal in my work. As I passed out of church, I caught just the two first lines of the hymn he had selected for the closing exercises, and the words that struck on my ear so strangely were these:

"Jesus, I my cross have taken,
All to leave, and follow thee."

As I went home for my hasty dinner, the words kept ringing in my ears; I thought of them during the whole time of sabbath school in our own church, and while teaching my class of boys, and when school was over and I started for my five mile walk, even though the snow and sleet blew in my face, it seemed just glorious to breast the storm, with that thought, "All to leave and follow thee," running through my mind. I remember inviting in a playful way, several who asked if I would go out there on such a day, to come along with me. I assured several of them, in answer to their remonstrances, that I had a great deal rather go on foot once more, but I did not tell them why I wished to go on foot. I am going to tell you, my friends, even at the risk of having some of you think I am proud of my mission work; because I know, by the letters I get from you, that my experience cheers a great many others in their duties. In the midst of a piece of woodland just beyond the brook, are some great trees, and a secluded place, where I have often knelt in prayer, winter as well as summer. Well, since I have been riding to the school, I have somehow felt that I missed a certain strength or energy that I used to gain in passing through these woods. How easily I walked the whole distance that day, thinking of the line in that hymn! How near God seemed to me, as I knelt in the storm by those trees! For a few months after my conversion, when I laid my tired head on my pillow at night, after a day of mission work, I used sometimes to have a strange sensation come over me, as if I were in the presence of innumerable friends; and even when the house was still, it seemed almost as if I could distinguish voices of encouragement and kind counsel, bidding me be not troubled, but go on in my own way doing

my Savior's work. At such times, a strange joy and peace thrilled me, and yet I never thought of Heaven. When I use the term Heaven now, as I frequently do, I can only associate it with the present. I know nothing of the future, and care less, for I have perfect trust in God, who will take care of all that, and make it all right. He will be with me, and I shall not fear.

Well, as I prayed for that school that Sunday afternoon, this wonderful joy and sense of companionship seemed to come over me again, and I wondered if Jesus' desiples in olden time used to feel such a pleasure in following him. I thought of the dreary Sundays when I did not believe in the Bible, and again I thanked him for this new path, even though it called me out on long tramps, through storms and sleet.

"All to leave and follow thee."

As I got out of the woods, I heard voices, and looking around, I saw a couple of girls who had started out in the storm, too. They explained that they had not intended to go, but seeing me, they concluded they could walk one mile, if I could five. One of them taught a class. Several new scholars were present, and among them, three boys, sons of an old friend of mine, who, I had reason to fear, did not endorse Sabbath schools very much. All had their lessons unusually well, and it seemed one of the happiest schools we had ever had. Had my praying in the woods anything to do with it?

On my way home, I stopped for supper at my mother's as usual, and she told me the circumstances under which those beautiful lines were composed. A young lady whose parents were not favorable to religion was turned out of doors, because she would not renounce it. Before leaving, she took a last farewell of familiar objects around the home of her childhood, and when in the orchard, took her pencil and wrote. The lines tell the rest of the story.

"Jesus, I my cross have taken,
All to leave and follow thee.
Naked, poor, despised, forsaken,
Thou henceforth my all shalt be.
Perish every fond ambition,
All I've hoped, or sought, or known;
Yet how rich is my condition!
God and Heaven are still my own."

Now, my friends, the thought of those words followed me through all the week, and I will tell you some of the results. Money matters were not all quite adjusted, and one considerable bill had been presented, that I was not able to meet. On Thursday, the man who had furnished the brick said he must have the whole balance due him. He *must* have it, and that was all there was to it. I asked the book keeper how much there was due him.

"\$32.13."

"Mr. S., at just what day or hour must you have this?"

"I must have it on the 20th, without fail."

"All right; you shall have it."

After he had gone, said the book keeper,

"We will not pay the hands then to-day?"

"Yes, pay them all."

"But how will you meet all these demands, if you do?"

"The hands doubtless need it; pay them all."

Before we went to bed at night, I told my wife all about it. I confess I had begun to suspect it might be possible that some of my friends feared, if they did not crowd me a little and get their money pretty soon, that perhaps they might not get it at all. Suppose they should all hand in their bills, as did the brick man, and say they must have it immediately. It might make trouble, without question. Said my wife,

"What will you do, if they should?"

"Ask God to send the money, or tell us how to get it, as we have before."

"But, perhaps you are not doing right. I cannot think that it is your duty to keep so many boys at work, when you could get along very well without them. You are doing them little, if any, good. They ramble about on Sunday, smoke and swear almost as much as if you had never tried to have them do better. You are wasting your energies, time, and money for them, and yet they worry you almost to death, by scattering things about in such disorder, breaking the tools, etc. I do not believe you ought to get in debt so, and I fear God does not wish you to keep on in this way."

These may not have been her exact words, but they are the substance of them, and if she did the boys injustice, the fault was all mine, for I have always told her all my cares and trials, and she doubtless thought her husband was all right, and the boys all wrong. I see now, that a great part of the fault may have been mine.

"All to leave and follow thee," came into my mind, and I told her we would kneel down and ask God if it was his will that I should keep these boys at work, and keep trying to have them become Christians, even though it did so little good. Still farther, I asked him to give me a plain evidence of his approval, by sending the money to pay those bills, if it is his wish that I should go on as I have been doing. This was on the 12th day of Dec.

Next morning, a visitor from quite a distance came in, and my work, writing especially, was so much behind, although I had been up and at work long before daylight, that I almost felt like refusing to stop very long, but "All to leave and follow thee" rang in my ears again, and I made up my mind I would make it as pleasant as I could for him, even if things did cross and vex me exceedingly that day. He was a very kind, pleasant man, and, indeed, these friends always are. I like to show visitors around, when the work is done with order and neatness, but when I go into a room and find dirt and disorder, it tries me exceedingly. He wished to see how fdm. was made, and I told the boys to start up; as it takes several hours to get the wax melted, they had abundant time to have their room in order; but, on going in with our visitor, I was very much vexed indeed, to find one side of the room covered with dust and litter, and worst of all, evidence all over the room, and even all through the starch with which the fdm. is rolled, of the presence of mice, in great numbers. I presume the boys sat

down on the boxes and waited for the wax to melt, instead of sweeping and brushing up. Again and again, have I urged that the traps set for the mice be examined every day, but they had been forgotten and neglected. When I asked one of them, why the room had not been cleaned up, I believe he replied that he did not know I wanted it done. I looked at those filthy black specks scattered over the implements and in the starch, and smelled the disgusting smell, then I looked at a place in the rolls where some body had rolled a piece of candy through, and marred the rolls, and I was discouraged and cross. I *will not* have such work. I did not say it but I thought it, with some pretty big resolves. It is well to think so, but it is very wrong for *me* to say it out loud. "All to leave, and follow thee." Yes, with God's help, I will try and have no more *such* work.

As we walked down to the factory, I tried to talk cheerfully, but it was only assumed. Finally said I,

"My friend, I am cross to-day. I was going to take considerable pride in showing you how we make fdm., but I have been awfully humbled." It seems that this point blank telling of the truth, even though he was a stranger, was the surest way of making the conversation interesting, although I had no idea he would care about my trials.

"I have had the same troubles, my friend, and I would not bother with boys who are so heedless."

"But if I do not, who will? These boys can all be taught neatness. I know by experience."

"I dare not advise," said he. "Go on in your own way; if you have the patience to do it, it is your work."

He was anxious to see a swarm of bees transferred, and as Will was off on a visit, I finally decided to have the engraver do it. The transferred colony was put in the stone bee hive over my office; he did it nicely and every scrap was brushed up and put away. He is an expensive hand, and I knew he would do it well. Do you see the point, boys? We pay him high wages just because he is neat and looks after specks of wax not larger than a pin's head, that they do not get tramped down under foot.

We started to go over to the apiary. Said my visitor,

"Mr. Root, I wish to take a little liberty."

"Anything you wish."

"But I may ask you questions you do not care to answer?"

"I have no secrets in the world; ask anything you like."

"How much are you in debt?"

I told him as nearly as I could without going to the books.

"How much interest do you pay?"

I told him.

"Are others connected with you in any way that would involve them, if you should have bad luck?"

"Only two people have undersigned me, and they are well secured by mortgages, as well as by an insurance on my life."

"Can you not get money lower?"

"Yes, but I should have to get signers,

and I do not wish to have my business in any such shape, that a bad move on my part might involve others."

He approved this. I have given above the substance of the conversation, as nearly as I can remember.

Finally, said he, "Have you any bills coming due very soon, that may trouble you to meet?"

I could not help looking at him in surprise at this, and he apologized.

"Perhaps I am going too far."

"No"; said I. "I have some bills to meet that trouble me some, especially, the balance I owe the man who made the brick for my building."

"Well," said he, "I have a proposition to make you, and I hope you will be frank to say so, if you do not wish to accept it."

There! thought I, I see through it all now. He wants to go in company with me. I had concluded some time ago, that the only company I should ever have in doing God's work was my Savior himself. You see I did not, even then, have faith enough to see the connection between this conversation and my prayer of the night before. His next words, however, opened my eyes, and it all became plain.

"If it will be of service, I will send you \$500.00, and you may keep it a year, at 7 per cent."

"But, my friend, you will want security?"

"None, only your note of hand."

"But why do you, an utter stranger, trust me thus? How do you know I will not make a foolish use of the money, and get us all into trouble?"

"Well, I think you are trying to do good, and I want to help."

"But I am really doing very little good; you give me far more credit than I deserve. I cannot understand it."

"Well," said he, "I have been reading your Home Papers for a few months past, and I got to thinking about it, and wondering whether you might not be in need of a friend, just about now. The more I thought of it, the more I thought I would like to come and see you, and see if a little money would do you good rather than harm. I have seen you, and am satisfied."

I thought of the strange intertwining of events; of the lines of that hymn; of my frankness in telling him how annoyed I was about the disorder in the wax room. I thought, too, of what the Bible says of entertaining angels unawares, and of how uncourtously I had many times treated visitors. I saw clearly that God was in it all, and I almost felt frightened, as I realized how near He had been to me. Unless I lived a purer and better life, I felt almost afraid to take that money, so manifestly from God's own hand. I told my friend that God had sent him here in answer to prayer. He did not dispute it although he made no professions of religion.

I told the circumstance at our prayer meeting that evening, and to several others, as an illustration of the way in which God answers prayer. A great many inquired if the money had come; when I told them it had not, the greater part of them replied that they

would like to see it, before they were convinced. I told it to the boys in jail, but they insisted it was some new confidence game, and that I would be the loser in some way. Finally, I told them I would bring the check over and show it to them before the day I had agreed to pay the man for the brick. In vain, I told them God did not answer prayers by sending swindlers; they wanted to see the full proof. After my Sabbath school, I stopped at my mother's. She, of course, had a faith like mine, but father feared something would happen to prevent its getting around in time. Said he:

"The man may be taken sick."

"But God will see that the money comes nevertheless."

"The mails may be stopped by deep snows."

"God will take care of the snows, and see that the money gets here by the appointed time."

The cashier of the bank said it was a wonderfully strange thing, and asked if the man had not some selfish purpose in view.

"Did he ask for no favor?"

"None."

"Did he not carry away something? I saw him, if I am not mistaken, carry off a package under his arm."

"He took with him some goods, but he paid for them all."

"Strange; very strange."

I wish right here to digress a little.

The next morning after this strange friend left, a gentleman came in. As soon as my eye caught him, I remembered my new resolution, to be careful hereafter about being uncourteous to strangers. After a few commonplace remarks, he gave his name as Bingham.

"Bingham of Michigan?" said I.

"The same."

"Mr. Bingham, I am *very* glad to meet you," and as I said it, I thanked God that I *was* glad to see him, from the bottom of my heart.

Well, we had a long talk about smokers. You do not know how glad I am, as I look back upon it, that it was a long, friendly talk. We did not agree on many things, but, although we talked plainly, and criticized each other pretty severely, on several things in the past, we did not so far forget ourselves, but that we indulged in some most hearty laughs, as we reviewed the past. The Home Papers caught it some, but it does not now trouble me, as it did once, when their imperfections are pointed out. Friend Bingham, in his plain talks, did me a great deal of good.

He told me all about the history of his smoker. I saw how he had got to look upon it as a child of his brain. I looked on mine too; I reviewed the different features one by one, the short cuts I had made from time to time, in saving expense, its extreme simplicity, as it seemed to me, compared with other smokers, and it seemed as if I could not give it up. It is true, I could not make it without valves, unless I managed to blow the fire from a little distance. This blowing the fire from a little distance, instead of putting the bellows' nose right into the fire, he claims as his invention. I should

not think of patenting such an invention, but he thinks otherwise. He is a man of clear intellect, and he may be right and I wrong. It is not the loss of my profit alone, for if I stop making these smokers that have been received with such loud tokens of approval, will it not be a loss to community at large? I think it will; but my friend thinks all parties will be greatly benefitted by being obliged to buy his. Who can tell us what is right? Did God send me that money to go into a patent right lawsuit with? That evening was our teachers' meeting. Friend Bingham went with me. I was asked to close the meeting with prayer. Should he hear my voice in prayer, and go away thinking it was but empty words, and religion was all a pretence?

I know this is close ground, and that there are extremes both ways. I know we should do our duty, without fear of what men may say in one sense, and in another we should be very careful that they have not reason to say we pray one thing and practice another.

My friend expressed himself much pleased with the meeting. I asked God to tell me my duty about the smoker. The result was. I told him next morning that I would give way, and so long as nothing could be shown to prove that he was not the first one who used a blast from a bellows in that way, I would, in accordance with his wishes, make no more smokers embodying that principle, and that I would also use my influence to have others do the same. I know there are those who will say I have no right to do this. In choosing the less of two evils, I did the best I knew how, erring on the side that harmed me most, if anything. There are several things about the matter that I think are not right, but I do not know how to right them. It seems to me that friend B. has wronged Mr. Quinby, and Mr. L. C. Root; but, on the other hand, why did not Mr. Root continue to make his smoker as he did before the Bingham smoker came out? If I am right, he has copied the features I have mentioned. In regard to the legal view of the matter, Mr. Bingham has got out a new patent that covers the whole ground most completely, which his first claim did not.

Well, instead of being a patent on a bee-smoker, both his first claim and this one are on an apparatus for the fumigation of insects. The first was so named, by mistake, so it is said. The last was so named by mistake too, so friend Bingham says. He thinks such a mistake would stand law, but I do not. Now considering the laws of God, rather than the laws of man, had I any right to give way, under such circumstances? I think it was best, considering the feelings of all parties. Should nothing turn up to make it clear that this feature is free, morally, for everyone to use, and should I not be able to get up a good smoker without it, why, we shall have to use Bingham's, and that will be no very great hardship, more than that we could not get a half dozen for 50c. each. Now we have got back to our subject; if God directed me to give this up, he will certainly guide me in giving you something just as good, if not better, in place of it. Can we trust him?

Thursday noon brought a letter from a bank at least a thousand miles away, containing a check for \$500.00 in gold. In a letter received from this kind friend a day or two before, he says: "I hope you may meet your brick man with a smiling face, next Thursday."

The brick man came in at the appointed time, and I judged from the expression on his face, that he feared he would be disappointed. To be sure, I could meet him with a smiling face, and as we walked over to the bank, I told him of how God helps those who trust him. I borrowed the check and took it over to the boys in jail. It silenced them, and brought out just the moral I wished to convey. Said one:

"I wish God would send me \$500.00."

"Very well; now tell me what use you would make of it."

"I would prosecute Holcomb, to the fullest extent of the law." Holcomb was the name of the man who had had these fellows arrested, and they claimed, much as such fellows always do, that it was a mistake, and they were innocent.

"I fear God will never send money, to be used for revenge; can you not possibly forgive Holcomb?"

"No; if it takes 50 years, and I can possibly scrape the money, I will prosecute him."

"The Bible says, 'Love your enemies, bless them that curse you, do good to them that hate you, and pray for them which despitefully use you, and persecute you.'"

"I cannot help it; I will never forgive so mean a man as H."

"Why, my friend, H. is only a man like the rest of us, and certainly no worse. Even as you state it, it is no worse than any of us might do."

"I do not believe there is another so mean a man in the world."

"Let me show you your error." Turning to one of the other boys, said I, "My friend, is there anybody you cannot forgive?"

"Yes, and he is a great deal meaner than H., from the account as I have heard it."

"Do you see the point, boys?" and I held the gold draft above them. "This paper reads, 'Pay to the order of A. L. Root, \$500.00 in gold, etc.' but there is something else on it to me." I had their attention completely.

"On this paper, God says to me, 'Go on and take care of the boys and girls who have no homes, and no work to do. Hunt out those who are poor and needy. Look after those who are unfortunate, careless, neglected, unhandy, and who may be rescued from a life of wickedness and sin. Teach them to love their enemies, to study the Bible, and to grow in wisdom's ways. Be patient, doubt not, and be not discouraged; for, lo! I am with you to the end of the world.'"

"Unless you will forgive your enemies and those who may have wronged you, boys, you will go down to the bottomless pit; but, if you will take up these little crosses, hard as they may seem, and say God's will, not mine, be done, these doors will open, and you will be free, not only to go where you choose, but to enter into the highest places in the land."

It is a hard matter to make them comprehend this, and to show them that it is fact,

not fancy. I got my friend Fred, of whom I have often told you, to go in and talk to them. He had gone through it all, and well knew the transition from bitter hatred to a forgiving spirit toward all humanity. He told them how hard it was for him, to forgive those who had wronged him, or at least whom he had imagined to have wronged him, and he told them too, how he had sat in that same stone room and dwelt on these things, and how much happier he felt, when he resolved to forgive them all, and take those pleasantly by the hand, whom he had felt as if he never could forgive.

I reason a great deal from past events, and when I look upon the most hardened culprit we have in our jails, and remember Fred's conversion, I think, perhaps he, too, may become a sincere and humble Christian. And when a stranger comes now, I fall to wondering whether he is not some one whom God has sent. It is not the boys in the jail alone who refuse to take up their crosses and follow Christ, but we seem to be stubborn and backward all around.

The "Growler."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

DEAR friend Root:—I have not received any bee-journal this month. For some reason or another you don't send those bee books very regular. Expect you won't send any for 3 months, and then you will send them all at once. If you do business in that way, you do it on a pretty poor plan. If you can't send the books a little more regular, and any one has got to write to you every little while, you will run short of signers. "That is too thin, you bet." You have got a good bee-journal, but be a little more prompt in sending them. Write me a postal and tell why you don't send them more regular. I don't know whether you overlook Lewis Beal's name or not. Send more regular, Mr. Root, if you will do so. Springport, Mich., Dec. 6, '78. LEWIS BEAL.

The subscription clerk explained to friend Beal that we had mailed every journal promptly, except the Dec. No. This one was delayed by moving the printing office, printing the voluminous index, etc.; but it seems there was trouble somewhere else, and now, friend Beal takes the Government officers to task in the following quaint, good natured way.

Dear friend Root:—I received your postal card in due time, but I haven't got any bee-book yet, this month. I don't know what is the reason. Them post-masters and them fellows that attend to the mail had ought to get some bees in their wool, "you bet"; maybe it would do them good; they had ought to have a lot of them creatures after them, and maybe the bee books wouldn't get lost. I don't know whether it is your place to send me another or not; you can do as you please about that. Them post-masters had ought to have a scolding, "you bet"; hadn't they, Mr. Root? LEWIS BEAL. Springport, Mich., Dec. 13, 1878.

It takes a lot of hard work to get up the Journals, friend Beal, but after they are done, we have no earthly use for them, only to hand them over to our subscribers, and so we are just as anxious as you are that you shall all have them at the very earliest possi-

ble minute, "you bet." I am very sorry for your delays, and will try and have the "machinery" fixed up all around.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POST-PAID.

MEDINA, JAN. 1, 1879.

Thou wilt keep him in perfect peace, whose mind is stayed on thee: because he trusteth in thee.—Isaiah, xxvi, 3.

NEVER mind if your bees are all covered with snow. They are all the better for it.

M. D. DUBOIS, of Newburgh, N. Y., speaks of a swarm of bees clustering on a schooner's mast, while sailing up the Hudson River, through the Highlands, from which he infers that they do not always, at least, choose their home before swarming.

My friends, I am in trouble: it is because I have so many real good, pleasant, and profitable letters from nearly all of you—letters that richly deserve a place in GLEANINGS, all of them, but they are so long, that I cannot get in a tenth part of them. I have tried to select the best portions, and to condense, but if I do so, I shall spoil your special individuality, which is to me one of the most pleasing things about any writer's work. I usually have plenty of short letters for Heads of Grain, but this year they seem to be all long, every one. Shall I enlarge GLEANINGS? I do not think it best to have the price more than a dollar, and I cannot afford a larger Journal for that price, at present. Shall we not all try to tell shorter stories? Or if you please, send me several short ones instead of one great long one. The short ones almost always find a place.

OBITUARY NOTICES.

In Somonauk, Monday, Nov. 25th, 1878, Charles Herbert, son of Major Franklin and Lydia Ann Bliss, aged 4 years, 4 months and 14 days.

You will see by this, that we have lost a loved one. We will never again hear that pleasant little voice say "Pa, the bees is swarming"; but God knows best. FRANK BLISS.

Somonauk, Ill., Dec. 12, '78.

My daughters, Linda and Emma, owners of the Memphis Apiary, died Sep. 7th and 8th, of yellow fever. My wife also died Sep. 7th. Mr. J. Capchart is also dead of same disease. My daughters managed 100 colonies and Mr. C. 200. C. H. GETCHELL.

Memphis, Tenn., Dec. 9, 1878.

We deeply sympathize with you, friend Getchell, in your heavy affliction. From the letters we have received at different times, from Miss Linda, we regard her almost as a personal acquaintance. Among the last was a pleasant one, about a smoker with a bellows of tin, that her papa had made. God gives, my friend, and God can take away. None but He can give us comfort, amid trials like these. Whenever I hear that one of our number is gone, I almost invariably look back, and wonder if their last letters received the kind and friendly answers they should have had.

TABLE OF PREMIUMS.

The first column is for those only, who send 5 or more names.

Names of Premium Articles.

Any of them sent post-paid on rec't of price.

	Prices of Premiums	Number of Subscribers required at or at	
		75c.	1.00
1—A B C of Bee Culture, Part First.....	.25	5	2
2—Lithograph of Amary, Implements, etc.	.25	5	2
3—Photograph of House Apiary.....	.25	5	2
4—"That Present," Novice and Blue Eyes	.25	5	2
5—Emerson's Binder for GLEANINGS, will hold 3 Volumes.....	.50	6	
6— " " better quality.....	.60		3
7—Pocket Magnifying Glass.....	.60	7	3
8—First or second Volume of GLEANINGS.....	.75		
9—Best quality Emerson's Binder for GLEANINGS.....	.75	8	4
10—Double Lens Magnifier, on 3 brass feet.....	1.00	9	4
11—Photo Medley, Bee-Keepers of America.....	1.00	9	6
12—First and second Vol. of GLEANINGS.....	1.50	10	
13—A real Compound Microscope, beautifully finished, and packed with Implements in a Mahogany Box.....	3.15	20	8
14—Oneya Glass for Bee Hunting.....	\$5.00	25	10
15—American Silver (Waltham) Watch.....	\$10.00	50	20

Machinery for Making Section Boxes.

There is such a demand for Saws and Mandrels for this purpose, that I have been obliged to have them made expressly for the work. A B C, Part II, considers the whole matter. A mandrel, suitable for holding the whole 8 saws at once, must be very strong and heavy, or you will have much trouble with the bearings getting hot. Such a mandrel, including 5 in. saws and washers, will cost \$27.50. For only 4 saws, a lighter mandrel will do, and the whole rig will cost \$16.00, with 4 inch saws. A single saw can be run on the light \$5.00 mandrel, and the entire expense will be only \$6.50. The latter can be sent by mail, for 70c. extra. Four inch saws, \$1.50 each; 5 in. \$1.75 each. Steel washers accurately ground to go between saws, 50c. each. A. I. ROOT.

POCKET RULES.

Since writing about the importance of each person's having a rule of his own, I have written to the manufacturers of rules, and find I can get them, by the quantity, so as to send you a very pretty, 1 foot, boxwood rule, 4 fold, for the small sum of only 12c.; and a 2 foot rule, same kind, for only 20c.

A. I. ROOT, Medina, O.

GEORGE GRIMM,
JEFFERSON, WISCONSIN,

Hereby respectfully gives notice to the public, that his Circular and Price List of Italian Bees, for the year 1878-9 is ready; and that he is selling bees at his usual low prices. 10-3d.



BARNES' PATENT FOOT POWER MACHINERY!
CIRCULAR and SCROLL SAWS.
Hand, Circular Rip Saws for heavy and light ripping. Lathes, &c., &c. These machines are especially adapted to **Hive Making**. It will pay every bee-keeper to send for our 64 page Catalogue. **Machines Sent on Trial.**

W. F. & JOHN BARNES,
Rockford, Winnebago Co., Ill.

Glass for Bee-keepers.

Glass, 8x18, for large shipping cases, 7c. per sheet; or \$3.00 per box, in boxes of 50 sheets.

Glass, 8x13½, for small shipping cases, 5c. per single sheet; or \$3.00 per box, in boxes of 66 sheets.

Glass, cut to any of the sizes used by Beekeepers, for \$3.00 per box.

At this price, each box must contain but one size. Glass in full boxes, shipped from Pittsburgh.

A. I. ROOT, Medina, O.

GRAPE SUGAR.

Superior, double refined Grape Sugar, for feeding bees, @ 4c. per lb. in barrels of 375 lbs., and 4½c. in boxes of 50 or 110 lbs.

The above prices are for sugar shipped from Medina. If ordered from the factory, at Davenport, Ia., the price will be ½c. per lb. less. Any amount less than 50 lbs. will be 5c. per lb. Instructions for feeding it to bees sent free. Sample by mail, 10c.

A. I. ROOT, Medina, O.

Tin for Separators and Extractors.

As we buy in large quantities, I can perhaps give you better rates than you are getting at home.

Price per box of 112 sheets, size 14x20, for

Separators and small cans for honey..... \$6 00

" sheet, for less than a box..... 7

IX tin for making Extractors, 14x20, per box 8 50

" per sheet..... 9

We will ship it from Medina, or from Philadelphia, as may be most convenient.

A. I. ROOT, Medina, Ohio.

WANTED, an Apiarist. Address L. B. HOGUE, Carpenteria, Cal.

Poplar Sections. Cheap.

Dovetailed Sections, 4¼x14½, 2 in. wide, per 1,000 \$6.00

" other sizes " \$8.00

Comb Fdn. 45 to 55 cts. per lb. Also Queens, Bees, Honey, etc. Wax worked up to order, at 25 cts. per lb.

I will take good yellow Beeswax in exchange for Comb Fdn., and allow 30 cts. per lb. delivered here.

Circular and price list free. Sample Section by mail, 5 cts.

REINHARD STEHLÉ,

1d Marietta, Washington Co., O.

GENERAL ASSORTMENT of Peach and Apple trees, and small fruits. Also several Farms for sale cheap. R. S. JOHNSON, Stockey, Del.

Langstroth Bee Hives,

Frames, and Section Boxes, of all kinds, cut ready to nail, at reasonable rates. R. R. MURPHY, 1-2d Garden Plain, Whiteside Co., Ill.

Sections! Sections!

Before ordering your Sections, send a 3c. stamp for a sample of our snow white, poplar wood, Section Box, so much admired by all at the National Convention. Any size made to order. Price greatly reduced. Circulars free. A. E. MANUM,

Bristol, Addison Co., Vt.

BEES FOR SALE.

50 Colonies Italians in Langstroth Hives, - \$6 00

50 " Hybrids " " - 5 00

100 " Blacks in Triangular " - 3 00

Will deliver in good condition on any Miss. River Packet. The stocks are worth the price for the honey they contain.

GEO. B. PETERS,

11-2d Council Bend, Arkansas.



Pure bred Poultry, Pigeons, Rabbits, and Guinea Pigs, for sale; 3c stamp for circular.

II. E. SPENCER, Center Village, N. Y.

VALENTINE'S ITALIAN BEE YARD.

Established 1867.

Send for new price list of imported and Home bred Queens, Comb Foundation, Hives, Section Boxes, Extractors, and Bee-Keepers' Supplies.

Also high class Poultry. Queen breeding a specialty.

First Premiums awarded us at St. Louis Exposition for 1878, on best Italian bees and honey.

1-6d VALENTINE & SON, Carlinville, Ill.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Eighteenth Edition Circular and Price List found in Dec. No., Vol. VI., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of postage required.

Canada postage on merchandise is limited to 3½ oz., and nothing can be sent for less than 10 cents.

15 Alighting Board, detachable. See A B C.

Part First..... \$ 10

Basswood trees for planting. For prices

see Price List..... 8 00

Balances, spring, for suspended hive (60 lbs.)..... 2 50

Barrels for honey..... 3 50

" waxed and painted..... 3 50

Bees, per colony, from \$7 to \$16, for partic-

ulars see price list.

10 Bee-Hunting box, with printed instructions..... 25

0 Binder, Emerson's, for GLEANINGS..... 50, 60, 75

10 Blocks, iron, for metal cornered frame mak-

ing..... 15

One of the above is given free with every 100

frames, or 1000 corners.

10 Burlap for covering bees, 40 in. wide, per yd..... 10

Buzz-Saw, foot-power, complete; circular

with cuts free on application. Two saws

and two gauges included..... 35 00

0 Buzz-Saws, extra, 85c, to \$3.50. See price list.

The above are all filed, and set, and mailed any

where

60 Buzz-Saw mandrel and boxes complete for

6 inch saws. No saws included..... 5 00

The same for 7 and 8 in. saws (not mailable)

3 Cages for queens, wood and wire cloth,

provisioned. See price list..... 10

30 " per doz..... 1 00

20 Candy for bees, can be fed at any season,

per lb..... 15

0 Cards, queen registering, per doz..... 06

0 " per 100..... 40

60 Chaff cushions for wintering (see Nov. No.

for 1877)..... 30

9 " without the chaff..... 15

40 Chaff cushion division boards..... 20

2 Cheese cloth, for strainers, per yard..... 10

10 Clamps for transferring, package of 100..... 25

Climbers for Bee-Hunting..... 2 50

Comb Basket, made of tin, holds 5 frames,

has hinged cover and pair of handles..... 1 50

Comb Foundation Machines complete \$35 to 100 00

20 Corners, metal, per 100..... 50

20 " top only, per 100..... 60

15 " bottom, per 100..... 40

On 1,000 or more a discount of 10 per cent will be

made, and on 10,000, 25 per cent. The latter will be

given to those who advertise metal cornered frames.

15 Corners, Machinery complete for making \$250 00

Enameled cloth, the best thing for covering

frames. Bees do not bite and seldom

propolize it. Per yard, 45 inches wide,

25c. By the piece, (12 yards)..... 22

Extractors, according to size of frame,

\$6 50 to 10 00..... 5 00

" inside and gearing, including

honey-gate..... 50

" Hoops to go around the top..... 50

5 Feeder, Simplicity, (see price list) 1 pint..... 05

7 Feeders, 1 quart, tin, (see April No.)..... 10

4 The same, half size..... 05

25 The same, 6 qts, to be used in upper story

Files for small circular rip saws, new and

valuable, 20c; per doz, by express..... 2 00

" The same, large size, double above

prices..... 1 00

2 " 3 cornered, for cross-cut saws, 10c; doz..... 10

15 Frames with sample Rabbit and Clamps..... 20

Galvanized iron wire for grapevine trellises

per lb. (about 100 feet)..... 50

25 Gates for Extractors tinned for soldering..... 1 25

50 Gearing for Extractor with supporting arm..... 75

0 GLEANINGS, Vol's I and II, each..... 1 00

0 " Vol's IV and V, each..... 2 00

0 " Vol. III, second-hand..... 5 00

0 " first five neatly bound in one..... 4 00

0 " " unbound..... 4 00

Hives from 50c to \$6 25; for particulars see

price list..... 1 00

0 Honey Knives, straight or curved blade..... 5 25

" ½ doz..... 5 00

" ½ doz by Express..... 5 00

Labels for honey, from 25 to 50c per 100;

for particulars see price list..... 5 60

Lamp Nursery, for hatching queen cells as

built..... 25

0 Larve, for queen rearing, from June to

Sept..... 50

15 Leather for smoker bellows, per side..... 25

0 Lithograph of the Hexagonal Apiary..... 50

0 Magnifying Glass, Pocket..... 1 00

0 " Double lens, brass on

three feet..... 3 00

0 Medley of Bee-Keeper's Photo's, 150 photo's..... 1 00

12 Microscope, Compound, in Mahogany box..... 25

0 Prepared objects for above, such

as bees' wing, sting, eye, foot, &c., each..... 10

7 Muslin, Indian head, for quilts and cush-

ions, pretty stout, but not good as duck,

per yard..... 5 00

10 Opera Glasses for Bee-Hunting..... 25

18 Paraffine, for waxing barrels, per lb..... 25

0 Photo of House Apiary and improvements..... 8 50

60 Pump, Fountain, or Swarm Arrestor..... 50

0 Queens, 25c to \$6 00. See price list..... 02

1 Rabbits, Metal, per foot..... 50

10 Salicylic acid, for foul brood, per oz..... 75

10 Saw Set for Circular Saws..... 10

0 Screw Drivers, all metal (and wrench com-

bined 4½ inch, 10c; 5 inch, 15c. Very nice

for foot-power saws..... 40

0 Scissors, for clipping queen's wings..... 05

6 Section boxes, fancy, hearts, stars, crosses,

&c., each..... 05

Section Honey box, a sample with strip of

fdn. and printed instructions..... 05

Section boxes in the flat by the quantity,

\$9 50 per thousand and upwards, accord-

ing to size; for particulars, see price list.

15 Case of 3 section boxes, showing the

way in which the separators are used,

suitable for any kind of hive, see price list..... 10

Seed, Alsike Clover, raised near us, per lb..... 25

18 " Catnip, good seed, per oz. 10c; per lb..... 1 00

18 " Chinese Mustard, per oz..... 35

18 " Melilot, or Sweet Clover, per lb..... 15

18 " White Dutch Clover, per lb..... 35

18 " Motherwort, per oz. 20c; per lb..... 2 00

18 " Mignonette, per lb. (25c per oz.)..... 1 75

18 " Simpson Honey Plant, per package..... 05

18 " per oz..... 50

18 " Silver Hull Buckwheat, per lb..... 10

18 " " peck, by Express..... 75

18 " Common " per peck..... 50

18 " Summer Rape. Sow in June and

July, per lb..... 15

A small package of any of the above seeds will be

sent for 5 cents.

5 Sheets of Enameled cloth to keep the bees

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The same for 24 sections, half above

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5 " Doolittle's, to be held in the mouth..... 25

25 " Bingham's..... \$1 00; 1 60; 2 00

" OUR OWN, see illustration in price

list..... 75

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0 Veils, Bee, with face of Brussels net, (silk)

The same, all of grenadine (almost as good)

50 Veils, material for, Grenadine, much

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Brussels Net, for face of veil, 20 inches

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Above is tinned, and meshes are 5 and 18

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3 Painted wire cloth, for shipping bees, 14

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1879.

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CLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VII.

FEBRUARY 1, 1879.

No. 2

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Publisher and Proprietor,
Medina, O.

Published Monthly.

Established in 1873.

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SCRAPS AND SKETCHES. NO. 2.

USING DEEP FRAMES, TWO STORIES HIGH.

ALTHOUGH "as broad as it is long," I believe the American frame is called a deep frame. I also believe that when these deep frames are used 2 stories high, they have to be managed somewhat differently from the shallow ones. For instance, if you should place an upper story, containing empty frames, over an ordinary swarm, I think the bees would be loth to commence so high up.

When a single story is full of brood and honey, and the bees begin to show a disposition to hang out, I remove three or four frames that contain the least brood, and place them with the adhering bees in an upper story. The vacant places in the lower story are filled with frames containing fdn., and the balance of the upper story is filled with empty combs, and then we, the bees and I, are ready for business. If the yield of honey is good, it is "business," for the bees will fill the upper story with a "rush." When the bees begin to seal the honey, I commence to extract it, extracting from the upper story only. With this management only one colony showed symptoms of swarming, and that was quieted by giving it a third story. This swarm was a strong one, had a prolific queen, and I could not see but that honey was stored as rapidly in the upper story, that "loomed" up so high, as in any other part of the hive.

DEEP FRAMES AND COMB HONEY.

As long as I can sell, at home, all the extracted honey I can raise, at a shilling, or even 10 cts. per lb., I shall do but little "fussing" with comb honey. I did, however, "fuss" with it a little; it is so pleasant, "you know," to know that you can raise comb honey if you wish to.

Three frames were removed from a single story hive, and their places filled by hanging a broad American frame containing 4 sections supplied with fdn. starters, on each side of the brood combs. Tin separators were used. Several strong swarms were thus supplied with sections, and when the bees were well started in them, 8 of these broad frames of sections, with the adhering bees, were taken from different colonies, hung in a Simplicity hive, and placed over the strongest swarm. As fast as the sections were filled they were removed, and new ones, supplied with fdn., were put in their places.

You may have to cater to the whims of the little chaps, somewhat, to get them at work in the upper story; but after they are once under way, or if they are very strong, I think it makes little difference whether your frames are deep or shallow.

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

Your plan of getting the bees at work in the upper story of hives with tall frames is all right, but I fear you will find more trouble with the deep frames than you imagine, especially if you use them side by side with shallow ones year after year. Some colonies go into an upper story much more readily than others. See Mr. Langstroth's remarks about deep and shallow frames.

ADULTERATION OF HONEY.

IN this question of adulteration, I have read all that was said, but have not yet had my say. I consider the question in another way yet.

Supposing glucose to be very healthy, very good, and to contain nothing injurious to health, is it right to sell it under the name of honey, or of sugar, or of other syrups? And if it is wrong to sell it under a false name, should this not be forbidden? You say that we must let demand and supply regulate the market. Very well; we agree to that. Let there be a law that will prevent the sale of articles of food under any but their real name, and then see how much glucose will be used by the people, under its real name. Let glucose be sold at its real value; let the manufacturers of honey sell their glucosed honey as such, &c., &c.; and then you will see demand and supply regulate the market.

Whether glucose be healthy or injurious, you take sides with the adulterators, with those who fraud their products, when you refuse to petition against adulteration. You thereby proclaim that you are willing they should keep on selling an inferior article, in the place, and at the expense, of the honey produced by your fellow bee-keepers, and that you would rather see the public cheated in the article they buy, than try to prevent a dishonest practice.

You claim that you are anxious to do justice to all; if so, prove it by publishing this short article. Truth fears not light.

I will make you a proposition that you can accept without contradicting yourself, and which will attain the desired end. Frame a petition to congress asking for laws to prevent the sale of any sweets under any but their real name, and you will do justice to bee-keepers, and yet not injure the honest sale of your pet article "glucose," or rather "dextro-glucose."

You have injured yourself considerably already on this question, and it is the best way to prove that you are really considering the public interests, and not your own alone. You will do your duty to bee-keepers by giving it a hearing, and at the same time, will give us satisfaction in a very reasonable request.

Hamilton, Ills., Dec. 21, '78

C. P. DADANT.

Gently, friend D.; if I am correct, I have favored the use of grape sugar for feeding bees, and nothing more. I have done this too, with the understanding that grape sugar cannot be used for adulterating honey; its bitter taste would render this impossible, aside from its invariable habit of hardening in the cells, almost immediately after it is fed to the bees. If anybody knows of any process by which grape sugar can be converted into glucose, by the ordinary bee-keeper, I will reconsider the matter. I have never used glucose, nor advised it; its expense alone compared with grape sugar forbids it. I have gone over this ground many times; I have also shown up at least two parties in the humbug and swindle department, for adulterating honey with glucose.

If you have proof of any more, send them along, and we will perhaps have a big list; I shall not hesitate, even if the firm is worth a million or more. If I understand the matter, I would have just such a law as they have in England and Scotland. I am not versed in getting up petitions to Congress, but if some one will get up one, such as you desire, making it a severe penalty to label honey or anything else, without giving the true name of the contents of the jar, I will furnish such petitions free, at my own expense, and I think I can promise the signature of every reader of GLEANINGS. At the same time, I shall use and advise the use of grape sugar until it can be shown that it is injurious to the bees, or that there is a possibility of its entering into the adulteration of honey, either comb or extracted. If my reputation suffers from such a course, I am content to have it suffer, for I believe I shall be justified by and by.

SIZE AND SHAPE OF MOVABLE COMB FRAMES.

IF we could demonstrate that a particular size and shape of frame was, under all possible circumstances, absolutely the best, no one could, with any show of reason, oppose its universal adoption as the authorized standard. Before giving the reasons which induced me to adopt my present style of frames, I entirely disclaim all pretence of being able to demonstrate that it is, under all conditions, the best, nor am I at all sanguine that the time is near at hand, when uniformity will be as much insisted on as in the standard weights and measures of the same country.

The inside dimensions of my first movable comb hive were 18½ in. from front to rear and side to side, and six inches in depth. This shape secured a large top surface for surplus honey receptacles. Double glass walls being used, the extra ½ in. was allowed, so that glass 12x18 (a common size), could be easily fastened against thin strips, to form the dead air spaces for protection against extremes of heat and cold.

For better wintering in cold climates, I changed these dimensions to 14½ from front to rear, 18½ from side to side, and 10 in. deep. To economize by using fewer frames, I next made the hives 18½ from front to rear, and 14½ from side to side.*

All the time that these changes were being made, I experimented with various other sizes. Frames were used in hives 13 in. deep, and in 1854 a number of hives were used 12 by 12 by 36 in. in the clear. One of these I carried to F. G. Cary, President of Farmers' College, near Cincinnati, in the fall of that year; and we put a forced swarm into it. The frames of these long hives were very nearly the size of what has since been called the Gallup frame. The surplus honey was sometimes taken in boxes at the rear of the main breeding apartment, and sometimes on the frames.

These hives had not only movable covers, but movable sides, hanging, like the frames, upon the rabbets, by which arrangement the dimensions of the hives could be changed at will. I have also used even longer frames than those adopted by Mr. Quinby; and only after numerous experiments was the present, so called, Standard Langstroth frame adopted. In adhering to it so persistently, I soon perceived that I suffered pecuniary loss. A reference to the back volumes of the *A. B. J.* will show how

*The hives last made for my own private use were 18½ by 18½ by 10 in. deep, holding 13 frames. They had double sides and the whole upper story could be filled with frames, while it was not necessary to remove all these upper frames to get access to the lower ones.

This square form gave the greatest capacity for storage above and below, with the least possible use of materials, while it was seldom necessary, in using the extractor, to disturb the lower story, or to feed back to the bees any honey taken from them. If the season was good, the lower story supplied the means to make new colonies and help weak ones.

warmly many of our best apiarians condemned it. Believing that I was right, I refused to make or recommend any other than "the flat things," and not a few thought that the validity of my patent must, somehow or other, depend upon this shape.

It cannot be denied that my standard frames are not the best for those who, living in cold climates, winter their bees in thin hives, upon their summer stands, using none of the precautions which long experience has shown to be indispensable. For the incorrigibly ignorant or careless, who give their bees no attention after the honey harvest ceases, an old box or hollow log is much better than any kind of movable frame hive. Improvements in apiculture are not in their line, and inventors and writers will more and more ignore them.

The shape of hive most in use, when I first kept bees, gave too little top surface for surplus honey. The low and broad style which I introduced, besides remedying this defect, has other advantages.

1. It is, for obvious reasons, much better adapted to the use of upper stories than taller hives. My own experience strongly supports the belief of so many, that it is more natural to bees to put their stores over their brood-nest (I use this convenient German term) than anywhere else.

It was my practice, in using the extractor, to keep neither honey-board nor quilt over the frames, so that I might work with the least possible delay. A glance at the top of the frames was enough, with Italian bees, to show whether the frames needed emptying. If the combs were crowded with honey, these bees would begin to build upon the tops of the frames; they repeatedly did this when they had plenty of room for comb building in empty side frames! As the attempt to build upwards is very difficult, being contrary to the laws of gravity, and of course to the instincts of the bees, why should they attempt it when there was ample room for extending their combs laterally?

2. Long and shallow frames are much better for all necessary manipulations than any other style. [a] In handling them, the arms are kept in an easy, instead of a cramped position; a point of great importance to those who must often spend many hours a day in such work. [b] The eye readily commands the whole surface of a comb, without that uncomfortable craning of the neck which the use of deep frames compels. [c] There is much less danger of hurting bees in lifting out or returning the shallow frames. [d] Less motion and, of course, less time is needed to insert or remove the shallow frames. [e] It is much easier to make shallow frames hang true than deep ones.

At some future time, I will reply to the objections which have been urged against my standard frame. My friend, Prof. A. J. Cook, in his admirable "Manual of the Apian," recommends the Gallup frame. It is a good frame, and I am heartily glad that this and other styles are being so largely tested by such experts as the Hetheringtons, Dadants, and others.

If it be in the nature of the case possible to decide what ought to be the standard frame, we shall, in due time, reach such a result, and our best apiarians will no doubt cheerfully accept it.

Oxford, O., Jan., 1879.

L. L. LANGSTROTH.

We are very much indebted to friend L., for the very valuable suggestions he has given us so opportunely, on the matter of hives and frames. It would seem from the above that even the long hives about which there was so much excitement a few years ago were nothing new to friend L., after all.

I have often noticed the disposition of bees to build comb right over the brood nest in preference to side storing, and as soon as fdn. made the securing of comb honey so easy, I was at little trouble in deciding that a two story hive with the standard L. frame was the one wanted.

HIVE MAKING.

Last season, I manufactured about 500 Simplicity hives, one story, and about 20,000 sections for myself and brother bee-keepers in Clinton Co. I did not advertise at all. My customers hunted me up, and took all the hives and boxes I could make, and they have given entire satisfaction.

E. THEW.

Saranac, N. Y., Jan. 17, 1879.

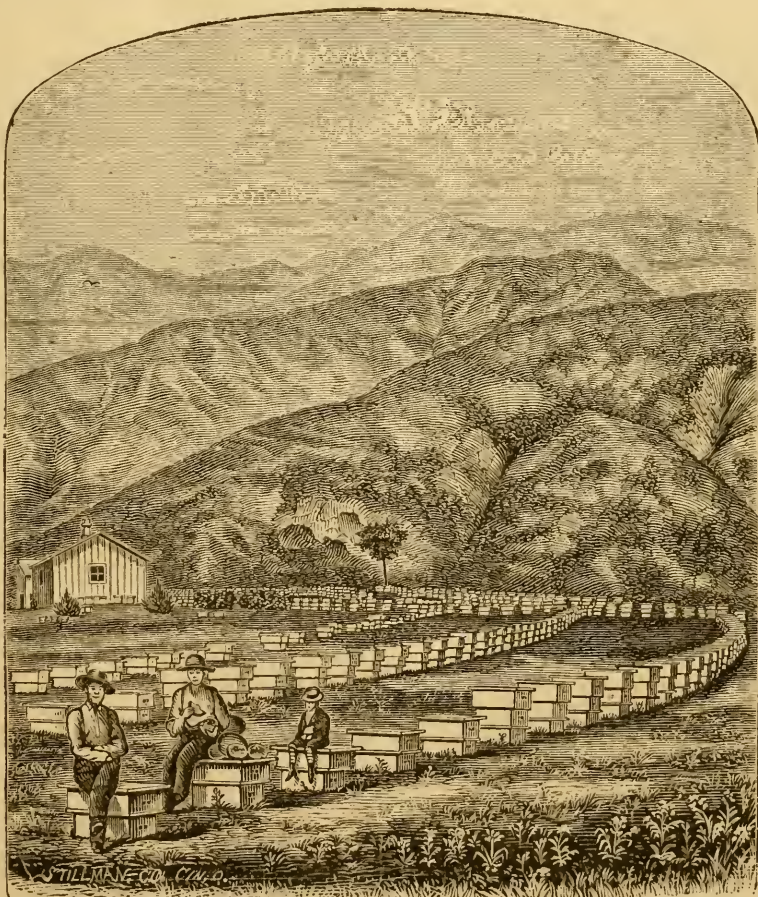
ANOTHER CALIFORNIA APIARY.

THE Photograph from which the picture was taken was sent us by Mr. John Oltman, Los Angeles, Cal. I have been unable to get any further particulars in regard to it. From the long rows of hives extending away in the distance until they look like mere specks of white, one can readily imagine that honey must be yielded in great profusion from some source, probably from the mountain sides, whose peaks seem almost to touch the sky in the distance. If I am correct, the mountains, as well as valleys, are covered with the wild sage that furnishes the beautiful, clear, aromatic, mountain sage honey. The different altitudes furnish honey at different seasons, thus greatly prolonging the yield. I should judge that the picture was taken during a yield of honey, from the unconcerned way in which our friends eat their watermelon, sitting on the top of the hives: even the little boy seems

oblivious of the fact that bees ever sting, especially when one happens to drum his feet idly against the hive he may be sitting on.

With such a number of hives all of one kind, it would seem that the owner would have been careful to get a good kind to start with, and I should guess by the looks, that he had wisely settled on the time honored Langstroth frame. Where they are piled up to 3 stories in height, does it not seem a pity that the 3 stories were not all made precisely alike. Simplicity style, instead of making each one a size larger than the one below it as shown in the cut? The saving in having just one sized bodies and covers, and no more, in an apiary, is no small item.

How we would enjoy dropping down on our friends for an hour or two in their wild mountain home, would we not, boys? Do you suppose they would have watermelons enough to go round?



COGSWELL'S APIARY, LOS ANGELOS CO., CALIFORNIA.

With such a multitude of hives, just think how much depends upon doing the right thing, instead of the wrong one; upon having a uniformity not only in the size of the hives and surplus boxes, but in your ways of doing things; upon having every-

thing under your thumb, so that there are no lost motions, and no time wasted in delays, hunting for tools, rectifying blunders, or anything of that nature. One needs to recognize his own peculiar failings, before he is ready to learn wisdom's ways.

Notes and Queries.

PLEASE rest yourself a little, and answer me 2 questions. Can I go through my hives now in mid winter, and clean them and examine them? I came to Omaha from Kansas in Nov., and there has been no time since then that I could examine them on account of the cold. I am uneasy about them; 15 stands are in the cellar. I put a screw in each side of each frame before shipping, and they seemed to come through safe. Can I take one at a time into the kitchen, and open them, using the smoker, and clean the hives? Would it not do, to do it at night by lamp light? Have you ever done it? Can I get them all back in the hive? Please tell me how to do it safely. W. G. PIGMAN.
Omaha, Nebraska.

[You can do all you say, if you work carefully, and it will not hurt the bees at all, if you pack them up warm and snug after you get through. I have overhauled them thus, during every month in the year. Unless many of them are dead and are in bad condition, I think it quite unnecessary to disturb them.]

What quality of lumber do you use for hives? [We use first quality of barn boards, for the bodies of the Simplicity hives, and best wide box lumber, for the covers. The Chaff hives are all made of cull lumber. We have to pay, for seasoned lumber, about \$22 for the barn boards, \$30 for the wide box, and \$10 for the culls.]

Of whom do you procure it, and at what price? [Our lumber was purchased from different mills, in the Michigan forests. If desired, I will get some reliable dealers in lumber, in our larger cities, to give us their addresses. Lumber must be purchased as near home as possible, on account of the expense of shipping. Unless you want as much as a car load, it will probably be better generally, to purchase at your nearest lumber yard.]

Is not white clover better for honey than Alsike? At what price per bu. can you send the seed of each variety? [Have had reason to think white clover honey superior to that obtained from red clover, but we have always regarded Alsike and white clover honey the same. It may be that the Alsike is somewhat like the red, and that it lacks the fine, exquisite flavor of thoroughly ripened white clover honey. There is a difficulty in procuring seed of any white clover, except the white Dutch; see price list.]

All who have honey for sale need scales that will weigh as much as 75 lbs. at a time, and that can be taken with them in a wagon and not occupy much room. At what price can they be bought?

[The scales we have been figuring on, only weigh about 12 to 24 lbs. If you wish them to go as high as 75, the best thing I know of is the family scale, with both scoop and platform, weighing from ½ oz. to 240 lbs. We can furnish these, shipped from the factory in Binghamton, N. Y., for \$9.00.]

JEROME WILTSE.

Rulo, Neb., Dec. 13, 1878.

THE BEE MALADY.

In this locality there is great mortality among the bees. The long continued and excessively cold weather of December brought annihilation to some entire colonies, and also largely diminished the numbers of those that survive. The prospect now is that hardly half the bees in the country will live till time of flowers. Most of the small bee-keepers have already lost half or more of their stands. The inquiry is, what is the cause of such unprecedented mortality? and is there any remedy? Of course insufficient protection during the inclement weather will be generally charged with the loss; but it must be remembered that colonies safely stored in dry cellars have by no means escaped decimation. I have heard some bee-keepers charge dysentery, others, honey dew, and others, poisonous properties of dark honey, with the destruction of their pets. Any instruction or information in regard to this from experienced apiarists would be gratefully received by your numerous friends.

S. W. SALISBURY.

Kansas City, Mo., Jan. 18, 1879.

[Reports of a similar nature are coming from a great many localities; it seems to be a revival of the old bee malady. The directions given in this No., and in the A B C, are all I have to offer. Let us have full reports in regard to the chaff packing.]

What makes my bees come out of the hive in the coldest weather, 6° below zero? They came out by the dozen, voided their excrement, and were not able to get back again, but froze to death. I shut them in the hive, and they died in the hive. I have lost 2 of my 4 colonies and some of my neighbors' bees are also dying.

My bees had plenty of stores, and are out on the summer stands. H. S. MOORE.

Cuyahoga Falls, O., Jan. 23, 1879.

[It will do no good to shut the bees in the hive; it is the well known bee malady. I know of nothing that will cure them, except warm weather, unless it is flying them in doors in the cage I have described.]

Will one horse, in a power the same as described in your Dec. GLEANINGS, give ample power for sawing stuff for hive making? Is the wheel plenty large enough to enable the horse to walk with ease, and exercise freely his whole strength? What width of band would you use in sawing with one horse? what size of rope on the power? and what weight should the main or large wheel of the saw be? Which multiplies speed with least waste of power, bands or cogs? H. P. NICHOLS.

Bridgeport, Conn., Jan. 21, 1879.

[One horse power is ample, if your machinery is light, and you do not care to rush things at a too great speed. I have never seen such a wheel, but have no reason to doubt the statement of the manufacturer. I would suggest an inch rope, and a 2 inch belt. The main wheel may weigh from 50 to 100 lbs. Cogs or gearing are best for slow motion, but will not answer for a high speed.]

ONE TIER OF SECTIONS.

Will you please give your readers a plain description of some simple rack for holding sections that will fit the Simplicity hive, and that can be tiered up; that is, as one becomes partly full, it can be raised and another placed under, and at the same time use berry-box separators. I have about 70 swarms of bees in the Simplicity hive, but do not like the idea of giving bees a full story of sections at a time, and don't see how it can be avoided with sections in the wide frames. I think a rack that will hold but one-half as many sections preferable, and I also think berry-box material good enough for separators, and vastly cheaper than tin. I shall be glad to see your answer in GLEANINGS.

ALEX. WILDER.

Sandwich, Ill., Jan. 21, 1879.

[Our 3 box case of sections, we have sold for this exact purpose, for the past 2 seasons. I do not think anybody will be pleased very long, with separators made of berry-box material. After the bees have once fastened wax to them, they are sure to do it again, and as fast as you can scrape it off. On page 327, of last year's GLEANINGS, friend Butler most strongly condemns a single tier of sections, and says the bees will fill a double one just about as quickly, which agrees with my own experience. To make a case so that the whole single tier of sections can be handled as one box, becomes a rather complicated affair, if you want the sections completely covered from the effects of propolis as they should be, separators added, and still kept so any one can be removed easily.]

THE HONEY MARKET.

The dullest season we ever had for honey, and especially comb honey, we have this winter. There is no demand such as there has been in previous winters, at almost any price. Two years ago, about Christmas time, I sold 20,000 lbs. of comb honey in less than 30 days; I have not sold 3000 this year and my competitors tell me the same story.

The principal reason, I think, is hard times, and honey, being still considered a luxury, must take a back stand in the way of family supplies.

The best comb honey sells here, in the jobbing way, at 12¢ 15¢, and our city is, apparently, full of honey from California. California comb honey is to be had in quite a number of commission houses all over the city.

CHAS. F. MUTH.

Cincinnati, O., Jan. 8, 1879.

WORK AND WAGES FOR 1879; THE BRIGHTER SIDE.

[Continued from last month.]

ABOUT one year ago, our bee hive machinery was all driven by a small engine; as we were much crowded for room, the engine was placed in the middle of a rather dark cellar. Toward spring, we were compelled to run night and day, and, as a consequence, this cellar seemed to be almost constantly a fearful scene of disorder. I talked and plead with the hands who were employed to take care of the engine, to have them keep the tools put up, the floor swept up, and to have it neat and tidy, though it was dark and rather a dismal place to work in.

One after another, they got tired of the berth, even though it was an easy one, and plead to go up stairs and work at the machinery. I think about a half dozen different boys were tried, but none kept the room clean a great while. Some of those who had plead very hard for something to do, did very well for a little while, but I began to think shiftlessness was an incurable disease of the human family, and almost despaired of getting anybody who would perform this easy task, as I wanted it done. To me, it seemed strange that any boy could sit down contentedly amid such disorder. Why, I was happy in just going to work and brushing up, because it was such a sense of relief to see the dismal, dusty shelves, boxes, etc., "shine," after being at work a while.

I hired a man, and paid better wages; but he did very little better than the boys. It was not only the looks of things, when a visitor chanced down there, that troubled me, but the loss of tools and property. Two expensive wrenches were shoved into the furnace with the shavings, and divers other kinds of property were getting lost and burned up, almost continually.

At about this time, a young man whom I had known pretty well, but of whom, I confess, I had formed a rather unfavorable opinion, applied for work. I knew he had changed about a great deal, from one thing to another; that he was in the habit of swearing, and I had pretty good reason to think him quarrelsome; he had a kind of reckless, don't care sort of a way that rather troubled me, when I thought of his coming among us. I told him I had no room for any more hands in the day time, and he at once volunteered to work nights only.

Now, it was not only the engine below that was a care and trouble, but the machinery above was often run without oil, and no car but mine seemed to detect the mischief that was being done; belts often slipped, and had to be laced right in the middle of the day, and various other such troubles occurred. This man commenced, almost the very first day, to put the belts and bearings in order. If a belt slipped off, he would throw it on with a sort of sleight of hand, without stopping the machines at all, and thus save much valuable time. He knew how to stop belts from slipping, and I very soon decided that I needed him about during the day. It is true, he began to swear very soon, but when I talked with him kindly about the matter, he assented to my wishes, and, in a short time, I was almost surprised to find him pretty regular in his attendance at the Bible class.

At one time, he had been fireman on a locomotive, and as the engineers happened to be all away one day, I asked him to run the engine. He said he guessed he could, and after an hour or two, he asked why we did not burn the sawdust. I told him we had tried a great many times to do so, but it could not be done with such an engine.

We had, in fact, been selling sawdust, and had a great pile half as high as a small barn, much in the way in the back yard. He asked if he might try a little. The result was that the sawdust was all burned from that time forward, and that he had charge of the engine.

Without my saying a word, only to give him permission occasionally, the whole cellar was kept swept from top to bottom, and was cleared of useless rubbish; the engine was scraped and cleaned all over; the brass and bright iron work made to shine like gold and silver; the other parts, boiler and all, painted over with the black varnish used on our honey extractor gears; in short, the whole engine that had, a few weeks before, pained me by its unsightliness, looked like a beautiful piece of gold and jet jewelry. At the same time that he was doing this, the engine was running at its highest capacity all the time.

In this same cellar, was the sink where all the hands did their washing, and in vain had I plead to have it kept clean and tidy. Many of the hands would spill the water carelessly on the ground, and then boards would be laid down to keep out of the mud. Papers would be thrown into the sink, the waste pipe obstructed, and sometimes when I came down to wash my hands, the soap would be found floating around, and the water running over. The inside of the sink was covered with accumulated filth, and cobwebs hung around the outside. Dirty finger marks were on the walls, and I would have cried often, if it would have done any good. No one seemed troubled so long as they could keep out of the mud, and get themselves clean, even if they did leave a basin full of dirty water for the next one to empty out.

Well, one day, I came down hurriedly, and this new engineer had a piece of sandstone, and was actually busy scouring the rusty iron sink inside; it was afterward painted on the outside with black varnish; the basins were scoured up and hung on nails on the newly whitewashed wall, and a neat card reminded every one who came to wash, to pour out the water and hang up the basin. Of course, a great many forgot, or would not hang up the basins, but our hero, for such I think he and all others like him deserve to be called, came to me asking for authority to have his rule enforced. I gave him the authority, and soon raised his wages 25c. per day.

I had been trying in vain, to find who threw sticks and waste papers down cellar on the floor. He very soon had every scrap of paper in bags, all the sticks in a woodbox, and the rest began to catch his enthusiasm, and we soon had glimpses of better times. Well has it been said, "Order is Heaven's first law."

My friend was all this time warning toward the Bible and Christian people, and although he swore occasionally, when some one purposely threw down his tools, or littered up his floor, he has been all the time getting nearer to the straight and narrow path, or, at least, I trust he has.

I remember often wishing that I could have a lamp to write by, that was as clean and neat as the one my wife always has on her table. Boys who wanted work, were desired, one after another, to clean and fill the lamps, and to do it well. Like new brooms, they did well for a little while, but very soon I was supplied with a lamp with smoky chimney, dusty shade, and oil all over the outside; and soon, it was not filled at all. In vain I called up the offenders; they forgot just that once; the chimney was broken; the oil was gone; that lamp would not "come" clean, &c.; or something of the kind, and I groaned in spirit at the carelessness of humanity.

Well, the engineer, after he had made everything shine down cellar, proposed to take care of the lamps, as he had nothing more to do. Imagine my joy—yes, it was really a thrill of joy that I felt, when I saw a lamp on my table every bit as clean as even my wife could have made it with soap and water. The white porcelain shade was clear and spotless; not a particle of greasy oil could I see when I passed my fingers over the glass, and then handled my clean papers; the light shone through the crystal chimney like sunrise on a June morning; and to set off the polished brass work (our friend has a taste for bright colors), some pieces of red flannel were put inside the lamp.

When our 50 horse power engine was purchased, some discussion arose among the hands as to who was to have the care of it. I made up my mind, very quickly, who was to run it. If I mistake not, some of the boys have said that I was partial to him; that he was one of my favorites. Yes, he has been a favorite; but who among you is there, who will go and do likewise, and pick up tools after the rest, and take up all kinds of drudgery as he has done?

There is one more point; the heavy compliments I have just paid him may have the effect of making him proud and overbearing. In fact, I have for a long time hesitated about giving him this justly earned praise, for fear it would do him harm. I pray God that it may not, and I pray that he may stop swearing entirely, no matter how much he is provoked.

Not only he, but all of you, must stop it. If it cannot be done otherwise, I will part with the best hard I have. Nay, farther; I will part from one and all of them, and give up this business, that I love more than anything else almost, for you must obey the command, "Thou shalt not take the name of the Lord thy God, in vain."

Does it pay to fuss so much, and to be so over

nice? Yes, it does pay. Since this man has had charge, we have had almost no accident, at all. Every day, his hand touches every part of the machinery, and not a bolt or nut comes loose without his knowing it. No accidents happen, because not a box gets hot, or lacks oil, and no part of the machinery is running where it is doing injury.

We are now in the new building—all of us. Visitors exclaim, "What a beautiful engine! Bright and new as a silver dollar!" But the engine is not a new one, after all; it is only because it has been cleaned and polished up so nicely. I can take visitors into either the engine or boiler room, at any hour in the day, and it is always a pleasant and tidy place. The floors are clean, the ashes taken up, the tools all neatly hung on the wall, there is no dust, and no litter anywhere. The metal work shines, and the steam and water gauges are as clean and bright as my lamp was, that night.

Passing through into the machine and blacksmith shop, we find much of the same spirit prevailing, for I have desired all the hands to keep their rooms as neat as the engineer does his. The tin shop is just as bright and cheerful looking; yes, even the wax room has caught the infection, and the floor is clean and tidy. It seems as if my prayers, for months past, are being answered.

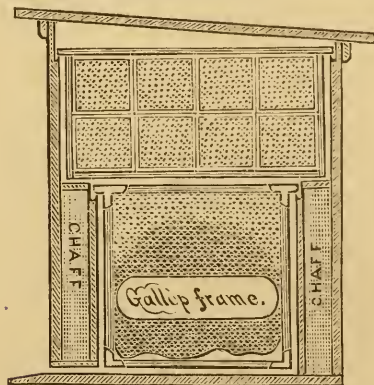
Credit is due to others besides this one individual, but I have chosen him for an example of what energy and faithfulness may do in any community, even where there are a dozen applications for every vacancy. If you have not a situation and are not sought for, it is because you are not faithful in the way I have pointed out.

The moral of all this is, not that you shall come to me for employment, for applicants from my own town meet me at every turn, and they have the first claim on me; but you should wake up to see that there is work to do at home, for every one of you; rouse up, and *Whatsoever thy hand findeth to do, do it with thy might*. The very same spirit I have shown you will pay in an apiary, and will pay immensely, too, I tell you.

With all the rest, be a Christian; not a hypocrite, but what you know a Christian should be. If I were to make you a visit this morning, you would all, especially the infidels and skeptics, tell me the difference between a Christian and a hypocrite. You know enough; stop discussion and act. If all is clean and in order up stairs, get a piece of sandstone and go down cellar. Blessed are the pure in heart (away down out of the sight of men), for—they shall—see—God. And you will have plenty to do and good wages, yea, heaped up, pressed down, and running over.

CHAFF TENEMENT HIVES.

OUR friend, N. A. Prudden, of Ann Arbor, Mich., sends drawings of his tenement hive, and also tells how he prepares them for winter. He uses the Gallup frame in the lower story, and the L. frame above, as shown in the cut below.



PRUDDEN'S TENEMENT CHAFF HIVE.

The hive is simply one of our old "Long

Idea" hives, divided into 4 apartments. The divisions may be simply division boards. For winter, contract each of the 4 to the smallest number of frames the bees can cluster on and have sufficient stores, move them up close together, put on the chaff cushions above, and we are all right. In the spring, give them room as needed, and when the lower story is full, put on the boxes above, as shown in the cut.

On many accounts, this is a splendid arrangement; for, by lifting about 3 of these upper frames, we can easily get at the lower ones, at any time. We could not put frames from the upper story below, it is true, but as the upper stories are just now used very much for comb honey only, there would be little necessity for putting the upper frames below, unless we preferred to use side storing boxes. This can easily be managed by using, instead of the Gallup frame, a frame I have before spoken of, and one that I would prefer above all other small frames, for queen rearing, wintering, building up nuclei, etc. I allude to a frame made to hang crosswise in the L. hive. It is just like the L., but is only $\frac{3}{4}$ as long, and holds 6, 15b. sections, instead of 8. This fixes the whole thing, and I would hand over the \$25.00 I offered about a year ago, were it not for just one very little point; that is, we should have two sizes of frames in our apiary. In fact, we shall have 2 sizes of frames in the same hive. These little frames are so very nice for many purposes, shipping nuclei especially, also for wintering weak colonies, that I do not know but I *may*, in time, overcome my scruples, and use them with the regular L. frames. For rearing queens and building up nuclei, I should prefer them, but for strong colonies, I would very much prefer the old L. frame. Do not go into them strong, but try a hive or two, if you have plenty of time and money to throw away, by changing back after a while, if you should not like them.

OUR OWN APIARY.

AFTER we stopped selling queens and uniting, we had 163 colonies. Not all full colonies, however, for many of them were on only 4 frames. At this date, Jan. 11, 2 have been found dead; both were on only 4 frames. One was in a chaff hive, but there were too few bees to stand 18° below zero. Had they been better packed with cushions, crowded on to only 3 frames, and the entrance contracted, they would perhaps have stood it. The other was in an old style L. hive but the cushion over them was too small to fit snugly. Either would have done very well in such a winter as the last, but for such long spells, with a zero temperature, we must have good colonies to be perfectly safe. We have now had nearly a month of this severe, but beautiful, winter weather.

In justice to our friend, Tremontani, I should state that he has filled all our orders, in a most satisfactory manner, and we have found him, in every respect, a most thorough gentleman. It is true, some of our spring orders were considerably delayed, but who among queen breeders has not had trouble in getting off spring orders as promptly as they could wish? There have been some misunderstandings between himself and some of our American dealers, and, if I am correct, the loss has all been allowed to fall on him, he having sent queens repeatedly, for which he has never received a copper. I can not but think this unkind and ungenerous, especially, to a foreigner. Shall we not consent to lose a little, rather than have our foreign friends conclude we are all a set of "tricky Yankees?"

COMMON SENSE APIARY.

A HOME MADE FOUNDATION MACHINE, AND HOW TO MAKE ONE.

YOU have written nothing that has struck me so forcibly of late, as your timely remarks in a recent No. of GLEANINGS, upon the necessity of rigid economy on the part of us bee-keepers, if we would succeed. As you have truly said, every drop of honey or scrap of wax, and all the odds and ends, must be saved and made to tell on the profit side of the apiarian's account. So true is this in these times, "the times that try men's souls," that I hold it as a principle, that he who can, out of his own study or experience, aid others by his inventive genius, in saving *dimes* where *pence* only have been saved, is a public benefactor.

The stern logic of necessity, coupled with the above ideas, has compelled me to invent; and now, in response to repeated requests from your subscribers in different portions of the country, I give the result of various experiments in constructing a cheap comb fdn. machine. My success was based on getting perfect plaster of Paris plates to work under pressure, while a thin sheet of wax intervened. Success can only be obtained by securing perfect plates, and arranging them to close together accurately.

To mould in plaster and wax requires familiarity with their working properties. The practice of dentistry, particularly the mechanical department, has made me familiar with their use. Take a piece of new comb an inch larger each way than you desire your plates, and shave it down with a very keen knife to within 1-16 of an inch of the cell bottom, on each side. As plaster will readily follow moisture, it is quite essential that the bottom of each cell should be moistened in some way. I used an atomizer, thus sending a fine spray down to the bottom of each cell.

Soaking the comb in water might possibly answer. Placing the comb on a perfectly level surface, you pour on your plaster, previously mixed in a small quantity and very thin, and commencing at one side you will work it clear to the bottom of each individual cell, with a broad case knife. Several "batches" of plaster may be necessary, ere you cover the whole surface of the comb.

Great care is necessary not to macth down the cell walls, and of course due rapidity of movement must be observed, else the plaster sets before fully manipulated. A layer of plaster should now cover the wax about 1/4 of an inch in thickness, which can be increased to 2 inches, by the addition of plaster in large quantities, nicely smoothed off.

When it sets, trim the edges and turn the wax side up. At each extreme corner sink a cone shaped hole, base upwards. These holes act as guides (we dentists call them "key holes") for bringing the opposite plate into exact position, until they are permanently arranged in the press.

After oiling the guide holes slightly, pour the plaster on this side as before described, taking care that the above named key holes are duly filled as completely as each cell. When the plaster has "set," separate the plates by carefully inserting a knife under one side or corner.

To remove the wax will be found the most difficult thing for the uninitiated. It is done effectually by the use of hot water. Boiling will not do alone, but the water must afterwards be poured from a tea kettle spout at a height of at least 3 feet. This cleans the wax completely from all the interstices. The balance of the way is clear sailing. The plates are encased in strong wooden frames, or boxes, by the use of additional plaster.

The "guides" on the plaster serve to keep the plates in proper position, until suitable, permanent, wooden guides are arranged on the frame work. The upper frame is attached to a strong lever. The under frame rests firmly on a solid bed which permits it to slide up upon a track, to receive the sheet of wax intended for fdn., while the upper frame and lever is raised by means of a spring.

With this machine I can "print" from 4 to 6 sheets of fdn., 12x12 inches in size, per minute. Dipping plates such as you advertise are quite essential, of course, to get the sheets of wax of the right thickness. The wax works much better if softened moderately in warm water. They can be placed in a pan of warm water right beside the machine.

Of course, these plates are subject to more or less wear, which will in time destroy their sharpness

It is an easy matter to substitute others however. The Prussian government has very recently awarded a prize to a Dr. Reissig, for a method of preparing plaster casts, moulds, &c., by which their sharpness can not be impaired by washing or moderate use. It consists in washing the plaster surface with strong baryta water, after which silicate of potassa (soluble glass) is applied; the casts are finally washed in a solution of alcohol and soap, to fill up all pores and prevent dust from entering the same. I shall try the preparation and report.

I am getting up one of the above machines for a friend of mine, and shall make as much as possible of it of wrought iron. Am confident they can be manufactured at a cost not exceeding \$10.

W. G. PHELPS, D. D. S.

Galena, Md., Dec. 17, 1878.

Many thanks, friend P.; but I fear many of our A B C class will succeed but poorly, without the nice mechanical skill that you dentists have acquired by long practice. Even should you make the machines for them, I fear it would take some practice, before they could make 4 sheets a minute. I should rejoice to hear that a practical machine could be furnished for \$10.00. My experiments with the plaster casts failed for the reason you have mentioned; the plates soon failed.

THE A B C CHILD THAT GREW SO FAST:

WHAT HIS NEIGHBORS SAY OF HIM.

I SEE by Dec. No. of GLEANINGS, that Mr. F. L. Wright thinks E. A. Morgan does not deserve a \$3.00 queen, if he charges \$1.00 for transferring bees. I think it is cheap. I will say this much for him:

I live 7 miles from Arcadia. He came out to my place with all kinds of bee fixings, hives, smoker, A B C of Bee Culture, and GLEANINGS, and offered to transfer my bees from my old box hives to the new for \$1.00 a swarm. I have kept bees for 10 years and never before had seen, or heard of, movable frame hives, and never had any profit from bees, except once in a while when I sold a swarm, or sulphured one and took the honey, and had taken eap honey enough from 10 to 20 swarms (whatever I kept) for my own family. I bought 4 new hives and had him transfer the bees. He showed me the first queen bee I ever saw. In fact, I learned more from him that day than I ever knew before about the habits of bees, and the profits of keeping and manner of handling them. He entirely revolutionized bee keeping with me. I gave him \$1.00 each for transferring and 20 lbs. of comb honey as a present besides, and engaged the balance transferred in spring. I am going to get new hives for all my bees in spring, and Italianize to some extent too, and shall employ him to do that. The bees in new hives, after being transferred, seemed to work with renewed energy, filled their hives in 3 weeks, and are in as good shape as though nothing had happened. I would not take one hundred dollars for what he taught me about bees in one day.

Enclosed is \$1.00 for GLEANINGS for one year. Now that I am waked up, I mean to keep myself posted, and try and realize some profit from my bees. I have sold off several stands this fall, and winter only 15.

JAMES M. TAFT.

Arcadia, Wis., Dec. 12, 1878.

You sent me a copy of GLEANINGS, in the summer, and I mean to subscribe for it at the beginning of the year. I have several swarms of bees now, which first came from a forest tree. My hives are home-made, frames 20 in. long by 14 deep, 9 in a hive. Every hive is full of honey and bees. My best swarm sat in the sun, and in August all the honey broke down and commenced to run out. I set pans under and caught 20 qts. I lost 1/2 the bees, and supposed the whole would be lost. I went 10 miles, however, to Arcadia, and got my brother, E. A. Morgan, and a L. hive, and some fdn. He said of course I could save the bees, and went to work and transferred them; but the brood was all lost, and the honey all melted. He put fdn. in all the frames, and took all honey away; placed all broken combs and drips

(about 20 lbs.) in the upper story in a dripping pan and let them carry it down. They built up, and before Oct. 15th, had the hive full and plenty of brood.

The same day, we went into the woods and took 75 lbs. of honey from the side of a tree, but could not get the bees. As the tree was large and the honey at the bottom, we cut off the side; but the bees went up 6 feet in a small hole in the center. My bees, I consider extra workers, or I live in a good locality. I never saw the same kind before. They seem to be as large again as the common honey bees, and are a black bee, but very cross. I shall hereafter shade my bees and use L. frames, as too large frames won't do.

R. A. MORGAN, P. M.

Eagle Branch, Wis., Dec. 20, 1878.

I have just received one of your GLEANINGS. I have one swarm of bees which hung on a twig near my house, in May, 1875. I am very much afraid of bees, so I turned an empty salt barrel over them, and after dark, I set them on a board where they stood until Aug., 1878. The hoops had rotted and broken, and the staves were spread apart, so I expected to lose them. I wanted to take the honey and kill the bees, but the swarm was so strong I could not go near.

I heard of E. A. Morgan's handling bees, and went to see him, but thought no live man could handle them, for I always supposed that a swarm of bees would go for a man as long as there was one alive. But, lo! he came, gave them a little smoke, rapped on the barrel a few times, then pried off the staves. I watched at a good distance, for I expected to see him used up in about two minutes; but the bees seemed to stand around buzzing and take no notice of him. He took off the staves half way round, then commenced rapping on the outside with a hammer. The bees ran up into the top story of his new hive, which he had taken off from the lower part, and placed on a staging just above the barrel. It was soon full, and hanging below were over half a bushel of bees, and still they came in from the fields. All seemed to be out of the barrel. He then went to work, and took out the honey, and laid it on a large work bench; cut off pieces from the bottom and fitted inside the frames, and fitted them so tight, he did not use wires; he filled 10 frames and set them in the bottom part of the hive, then moved the barrel away and set the hive on the spot, and took the top part down and emptied the bees on top of the frames and set it over the lower part, pushing a half bushel of bees off on the ground. He did not put anything in the upper frames, but fixed them in and went to work at the remainder of the honey. He took 117 lbs. of good sealed honey.

Meantime the bees clustered out and more than half a bushel hung outside. He then went to work and made a third story and put it on, and all went in; but such a roaring they kept up for a week, every night and all night! He offered me \$10.00 for them, but I would not take it. He came again in 2 months and looked at them, when the hive was full, and it now weighs 152 lbs. The combs in the barrel were 34 in. long and the 3 center ones were 22 inches wide. I think they never swarmed, but Morgan says there were empty queen cells. What do you think? Did they ever swarm? And did one queen keep up the swarm?

There are over one bushel of bees. I gave him \$3.50 for hive and work, and think it was cheap. What did he offer so much for the swarm for? I stole 50 cts. worth of experience of him, and when I get able, am going to take a bee paper. Answer in GLEANINGS. I borrow of Morgan.

MICHAEL ARRIGAN.

Acadia, Wis., Dec. 16, 1878.

Yes, friend Morgan, what did you offer Mr. Arrigan \$10. for those bees for? Bees in a barrel, or in any very large hive, may not swarm for a great many years, but they are pretty sure to do so sooner or later. I think friend Morgan's charge of \$1.00 quite reasonable. He did the work in a thorough, workmanlike manner, and took pains and pride in teaching all he could meanwhile. A man who would do the work, even if he did it well, without taking pains to teach bee culture, might not be worth half as much. Again, friend Morgan was fully equipped with implements, and well posted in all modern improvements. Does not that

make a difference? I predict that he will have more such work, at that price, than he can possibly do, and even if he does get four or five dollars a day, he fully earns it. Energy and brains are in brisk demand, even through hard times.

THE TENEMENT HIVE.

MR. SCHOOLMASTER:—I won't stand this any longer. I don't mind sitting and listening for awhile; but, after a time, I get tired of this one sided game, and feel like "talking back." With a little insignificant apiary of 30 colonies and no imported queens (we get honey though), I need not think of the "boss" coming near enough for me to talk to him. Well, at one time in the fall, I thought of going to Medina just to see if there is any hexagonal apiary there. But I would be so bored to go there and find hybrid bees building square cells in a straight row of hives, that I finally concluded to stay at home. Then, if I did go, I couldn't very well take one of my hives with me, and the "boss" wouldn't listen long enough for me to tell him that I had one at home, and he would go on his way rejoicing, thinking that no one can make hives without "steel gauges" and a "brick factory." Another good reason for not going is that I might become dissatisfied with my "fixins," and a bigger reason is that I—I—well, I might come back with a poorer opinion of myself. When a fellow reads about bees and works with the bees and lays awake o' nights and studies about bees, is it strange for him to take a notion to talk about bees? And right here is where the trouble comes—to whom will I talk? If I'd go to talking about the fertilization of queens and about introducing virgin queens, about tin separators, comb foundation, and chaff hives, to the old farmers—why, they would send me out to t'other side of Columbus, before a week. Well, I wouldn't have lived this long, but J. A. Buchanan comes around once in awhile and sometimes I go there and—well—pretty near forget to come home. The genuine bee-keeper is a species of lunatic any how. Did you ever see two of 'em meet? Can't they talk and ask questions? They may be entire strangers to each other, but they are fast friends at once. And such talk! to the bystanders, it is unintelligible jargon.

Now "boss," did you ever try to talk bees to a feller who wasn't a bee-keeper? You can take some subject and explain it all out, and think that you have made it so plain that the "wayfaring man though a fool" can't help but understand it, and then he will just turn around and ask some "fool question," showing that he don't understand a word you have said. Did it ever occur to you that one of our most scientifically constructed hives is very much like the natural comb? It is the joint product of the many. And again, how a fellow will study and study and blunder around every way, in trying to find out some little, simple thing that he "oughter knowed always." I was led into this train of thought a few days ago, while looking over GLEANINGS. During the last year, I have been constructing a hive; each part has been adopted after deliberate consideration; I am pretty well through with it, but, "for the life of me," I couldn't name it satisfactorily. Now another fellow coolly steps in and, without a bit of trouble, calls it "The Tenement Hive." Well, it's a "leetle provokin," isn't it? By referring to Vol. 5, p. 38, you will see that I had 4 hives packed in chaff during the summer of '76. They were in one long box, with the entrances all to the south. During the summer of '77, I had 3 hives in one box, with entrances at the same side. I have had no trouble by the loss of queens, but there are other objections. If a swarm issues and then decides to come back, I have always found it necessary to cover or close the other entrances.

Other objections to having the entrances so near each other will readily occur to practical bee-keepers. With this exception, I liked the plan so well that I began to think of permanent institutions for three colonies. Last spring, I fixed up permanent apartments for 5 colonies in a box that was made in '74, to pack hives in. The entrance to the middle apartment is at the north, the end ones open to the east and west, the other two open to the south. I have found nothing seriously objectionable in this plan, but I would prefer to have no entrance at the

side where I stand. In Oct., I built one hive for 2, and one for 3 colonies.

Now for your objections: "It cannot be hinged at one side." After working with a cover of this kind for three years, I have failed to find any inconvenience whatever. On the other hand, it is one of the very things that I like. The cover is raised up cut of the way, and propped in a twinkling, and if it is hinged at the south side, it is as good as an umbrella.

Advantages:—With Mr. Underhill, I will say "Economy of material and labor in construction, and convenience in working about or with them." And why not say economy of heat during winter and cool weather in the spring? If the cover is raised 6 or 8 inches at the north side, it seems to suit the bees exactly in the hottest weather. The long box referred to above was stocked with five large, natural swarms, hived on frames half filled with fdn. The roof is flooring covered with pine shingles and was not shaded at all; yet, when the roof was raised 8 or 10 inches at the north side, there seemed to be no inconvenience on account of the mercury standing at 95° in the shade.

Then, this hive can be locked the same as the poultry house and the corn-crib, if it is needed.

I have been quite enthusiastic over this chaff "Tenement Hive" for some time; but several years ago I decided not "to write up" new things until they had stood the test of usage (a bad rule; it would ruin the patent business).

J. M. REYNOLDS.

East Springfield, O. Dec. 12, 1878.

Friend R. sends some beautiful diagrams of his hive with the above very pleasant and "neighborly" letter. The only objection I have to the tenement hive is that all that have been tried (and there are a great many of them scattered over the land, as I judge from the pile of letters we receive in regard to them) have almost always been sooner or later discarded. When everybody drops a thing, I regard it as pretty good proof of its unworthiness. The long Adair hive well illustrates this. Thousands were made, and many bee-keepers transferred all their bees to them, but now scarcely one is used, unless it is those sold by Mitchell, who claimed them as his patent just about the time they were declared to be a failure. It is quite possible we have never had a really handy tenement hive, and we can certainly give friend Underwood the credit of having invented the name, if not the tenement hive, that will be adopted by the coming bee men and women.

USING SECTION BOXES, TIME OF PUTTING THEM ON THE HIVES, ETC.

HAVING given you my plan of putting sections together, you may be interested to know about using them on the hives. Last summer, I did not get sections on all my hives till about June 18th, as I had but little time to see to my bees till June 7th. Having sections to put together, frames to make, &c., after June 7th, I got behind in my work and kept behind all summer long, making my work harder and more unpleasant, and I think quite likely I might have had 6,000 instead of 5,000 lbs. of honey, if I had been in readiness with everything done in advance that could be done.

It is somewhat important to know just when is the right time to put on sections, and I am not sure that I know, but I think I would rather put them on too soon than too late. If they are put on too soon, the hive is made unnecessarily cold, and part of the flying force is kept at home to keep up the heat. If sections are not put on till after the bees are ready to store surplus, they waste time in storing in the space that should be left for the queen, and very likely make preparations for swarming, thus materially interfering with the surplus crop. If I had only a few colonies and plenty of time to work with them, I think, as soon as the hives seemed well stocked with bees and honey was coming in, I should put on frames of sections only as fast as the bees occupied them, closing out, by means of quilts

and division boards, all cold space not actually occupied by the bees; but I had 124 colonies to handle, and I could save time by putting on a super filled with sections, all at once.

SHALL WE PUT SECTIONS IN THE LOWER STORY?

The summer of 1877, I put two frames of sections at the side of the brood, in the main apartment, before putting on the super, and I am not prepared to say whether it is best to do so or not. I think the bees are rather slow in such cases, to finish up the bottom sections.

Last summer, I put sections only in the supers, and I think it made me less work; but, possibly, by right management, more honey might be secured by having sections in the brood apartment also. To get the bees to work more promptly in the sections, I put a frame of brood between two section frames and turned the open side of each (on which were no separators), next to the brood. This brood I put in the center of the super, crowding the section frames tight and snug up to it. In a few days, perhaps 5, but varying according to circumstances, the bees had commenced work on all the sections in these two frames, and then I put two empty frames next the brood, or between the brood and the sections already started. When these empty frames of sections next the brood were started, they changed places with the outside empty ones, and the super was now left with 6 frames of sections in full progress and one frame of empty sections. This frame of empty sections was apt to be very unsatisfactorily worked, and I am not sure that I have hit on the best plan, but I am willing to learn. I am sure I can improve another year, and shall be glad of your criticisms.

Chicago, Ill. Dec. 19, '78.

C. C. MILLER.

Your experience, friend M., is much like that of the rest of us. There is a great difference in colonies, in regard to working in sections at the side of the brood in the lower stories. If you have no upper story on at all, the bees will work with great vigor, in the sections in the lower story, but this does not pay, unless the colony is a feeble one. Also, if we have only a single tier above, they will be much more disposed to work below, than where we have the usual upper story full. This is one reason why we have such a difference of opinion, in regard to the storing. A tall frame, like the American, also favors section boxes at the sides; but with the L. frames, and the whole 56 sections above, the bees are often disposed to let the bottom ones remain until they get soiled and dark, before finishing them. With the fdn. starters, we seldom have any trouble in getting the bees to go right into the upper stories at once, without any frame of brood at all. Our bees are generally ready to go into the upper stories in a mass, as soon as honey begins to come, for we usually succeed in having every hive crowded with bees, by the time clover comes into bloom.

FOUL BROOD.

I BOUGHT 2 swarms of pure Italians, at \$10. each, in Apr. Moved them to my home, about 3 miles, and soon after commenced feeding them a little honey from a hive that had had a swarm in it the year previous. The Italians being in Langstroth hives, and very gentle, I took great delight in watching their progress, which was done so easily, by taking off the honey board and lifting up the frames one by one, that I learned very many things during the season that I had never heard of before reading GLEANINGS. No. 1 swarmed June 3d, it being the earliest swarm in town, I think, then again the 13 and 17 of June. No. 2 got nearly ready to swarm once or twice, as I supposed; at one time, they had 3 queen cells capped over, but the next time I looked at them, in a day or two, the cells were destroyed and my hopes nearly blasted. After this, I took 6 of their best cards of brood and placed in No. 1 and their 3d swarm, 3 to each, then filled their place in

No. 2, by putting the 3 I took from No. 1, and 3 that I made from the comb in this old hive, in their place. About this time, I noticed that there were a number of cells in No. 2 that contained a blackish, putrid looking substance. My bees did extra well, I thought; for in the fall, I found I had taken 180 lbs. of cap honey in 2 lb. boxes, the most of which I sold for 15c. per lb. After taking the set of boxes, of 48 lbs., off the 2d young swarm, I do not think there was 4 lbs. in the hive. They had put it all above. Later in the fall, I noticed that this putrid substance had increased wonderfully, producing a very offensive smell in the two old stocks, and furthermore, it was to be seen in the 3 young swarms. By this time I made up my mind, from what I had read and others had said, that my bees had foul brood. I destroyed the bees and comb in the 2 old stocks, and the combs of the worst young swarm, shook the bees into an empty box, kept them there 3 days, then put them on some clean combs that I bought of a neighbor, and fed them clean honey. I removed the other 2 hives of bees, 13 miles off, and traded a cow for 6 swarms more. I am trying to winter the 9 swarms by packing in chaff.

I have never written anything concerning bees before, and I guess you will hope, by this time, that I never will again.

QUESTIONS.

1st. How shall I manage with the 2 swarms, in the spring?

2d. Have I cured the one at home?

3d. Shall I use the 3 hives again? If so, how can they be cleaned?

E. H. KNAPP.

Fabius, N. Y., Dec., 13, 1878.

All I know of foul brood is given in the A B C. As I have never had any personal experience with it, I can only suggest. I think you have done about right. Giving the hives a thorough fumigation with brimstone, or a zero freeze, I think, will kill the germs of the foul brood; but, as the point is not well settled, it may be safest to destroy them. I should try salicylic acid on the two you have moved away.

SEPARATORS OR NO SEPARATORS.

ALSO SOMETHING ABOUT EXTRACTED HONEY.

TAKE the liberty to write to you concerning the use of tin separators, about which, begging your pardon, I cannot agree with you. I have been reading and watching your ways for 4 or 5 years past, but have still followed our old friend, Mr. Langstroth, until I thought your new inventions were well tested.

So last spring, I ordered of you an extractor, tin separators, and several other things, to start on the new plan. Well, I fixed up some nice 3 frame boxes with separators, and put them on top of the best stocks I had, which were covered up on top and around the sides with old rags to keep in the heat, and about the third day, I thought I would peep in and see what they were doing; but, behold! there were only a few scattered bees crawling around here and there.

Well, as honey was plenty, but the weather I thought too cool for separators amongst the bees, especially at night, I concluded I must try some other plan. So I made some cases to hold 30 sections, with slats across the bottom to set the sections on, and put on a few of them for trial, and in two or three days peeped in, and what did I see? Nice white comb nearly to the bottoms of the sections; but, as the hives leaned forward, the comb was built accordingly. However, I saw they meant to work with a will, either straight or crooked; so I leveled up my hives from front to rear, perfectly level, and made more cases, got sections on them all, and they worked with a will, and I tell you, dear sir, they made me work too.

The most of the sections without the separators were filled and taken off before they began to work in those with separators; and where the hives were leveled up and comb fdn. hung plumb in the sections, they were as nice as anybody could wish, and there were no bits of comb built between them—not in one in two or three hundred; besides, the sections are fuller and plumper by having only one passage instead of two.

Now it may be that experience differs as well as opinion, but if mine don't differ from this year, I will never want any tin separators. Besides, they are very unhandy, to say the least, unless they are in the broad frames, and they are not needed there, because I got some of my nicest sections in broad frames, from new swarms.

Now, I will give you the amount of honey I took this season from 35 stands; mind they had a good surplus of old honey 'rom last year, as I had no extractor until last spring. Well, I sold of extracted honey 1,800 lbs., besides what we used, and of section honey I have sold about 1,400 lbs., and have about 400 lbs. more, but they are not full weight. These I will sell at a less price. Besides I got about 80 lbs. of box honey.

For my extracted honey, I got from 10 to 15 cts. per lb. My section honey I wholesaled to James Baird for 15 cts. per lb. Now, Mr. Root, you will think that looks a little too big; it does to me; but I give you the honest facts, and will refer you to my neighbor bee-keepers, Mr. John Baird and James Baird, who retailed about 1,000 lbs. of section honey.

I will give what I extracted from three hives; not as a big thing, but to show that it will pay well, at 10 cts. per lb.

June 13,	extracted	13½ gal.
" 20,	"	14 "
" 27,	"	16 "
July 6,	"	18½ "
" 27,	"	10½ "
Total,		72½

All from upper stories. It weighed from 11 to 11½ lbs. to the gallon.

One thing I would suggest; that is, that you print a few thousand copies of how and why it is, that extracted honey can be sold cheaper than comb honey. If I had had 200 or 300 copies to give to my customers last summer, it would have saved a good deal of time and a good deal of talking, besides introducing the honey.

Some, as soon as their honey began to candy, accused me of dishonesty; said it was made of sugar. I will tell you of one honey dealer in Wheeling, who has dealt in honey for several years, and still supposed that extracted honey was pressed out, until I explained it to him, and when his honey candied, he didn't know he could melt it again. Wm. BITZER.

Elm Grove, Ohio Co., West Va., Nov. 26, 1878.

If we dispense with separators, we virtually reduce the upper story to one large box, and I am well aware the bees will commence sooner without the separators than they will with, many times; if you will look on page 209 of GLEANINGS for 1876, you will see that I once came to the same conclusion you have, and the next season, sections were put on about half of our apiary, without separators; but when we commenced taking the honey off, I very soon decided that I never wanted any more sections in that shape, and we finally went over all the hives exchanging broad frames with separators on, for those that had none.

All of our honey labels, friend B., give a brief explanation of the difference between extracted and strained honey, but since you have mentioned it, I think I will have a label made, giving fuller explanations, and the reason why extracted honey can be sold so much cheaper.

SALT FOR BEES AGAIN.

I can tell you how I make my bees eat salt. I go out early in the morning, when the dew is on the grass or bushes, throw a few rods of my bees, and sow the salt broadcast on the grass or bushes, whichever it may be. It will dissolve in the dew, and I will guarantee that the bees will lick it all up clean.

Jordan Center, Wis., Jan. 1, 1879.

A. ADAIR.

Thanks, friend A. I presume our bees will stand a chance of being well salted next season, even if they have gone hungry for salt heretofore.

ROCKY MOUNTAIN BEE PLANT. (*Cleome Integrifolia*). This is a beautiful plant for the flower garden, to say nothing of the honey it produces. It grows from two to three feet in height, and bears large clusters of bright pink flowers, as shown in the cut.



ROCKY MOUNTAIN BEE PLANT.

It is a near relative of the SPIDER PLANT, which see. It grows naturally on the Rocky Mountains, and in Colorado, where it is said to furnish large quantities of honey. Although it succeeds easily under cultivation, in our locality, I cannot learn that it has ever been a success pecuniarily. With this, as well as with all other plants, it must be borne in mind that, to yield honey enough to give it a fair test, acres are needed, instead of little patches in the garden. The seed has been offered for sale for several years past, as a plant to be cultivated for honey; even if it does not pay for honey, it will pay to have a bed of it on account of its beauty. I first saw it in bloom, at a neighbors, but have never learned whether it yields honey in the same manner as the spider plant, or not.

STINGS. It is true that bees cannot bite and kick like horses, nor can they hook like cattle, but most people, after having had an experience with bee stings for the first time, are inclined to think they would rather be bitten, kicked, and hooked, all together, than risk a repetition of that keen

and exquisite anguish which one feels as he receives the full contents of the poison bag, from a vigorous hybrid, during the height of the honey season. Stings are not all alike, by any means, and while I can stand the greater part of them without even wincing, or stopping my work, I *occasionally* get one that seems as if it could not possibly be borne. As I always find myself obliged to bear it, however, I try to do so as best I can.

I have often noticed that the pain is much harder to bear, if I stop and allow my mind to dwell on it; or after being stung, if I just think of former times when I have received painful stings, at the mere thought, a sudden pang darts along the wounded part. I do not know why this is, unless it is the effect of the imagination; if so, then it is clear to my mind that even imaginary pains are very hard to bear. I have sometimes purposely, by way of experiment, allowed my mind to dwell on the pain of the sting the moment it was inflicted, and the increase would be such, that it would almost make me scream with pain. If you doubt this, the next time your feet get very cold, just think of wading barefooted in the frozen snow, at a zero temperature. Perhaps my imagination is unusually active, for it sometimes makes the pain, when riding in the cold, almost unbearable, while I get along very well if thinking of something else. Well, if others have had a similar experience, and I presume you all have, you can see why I have so often given as a remedy for stings, simply to keep on with your work, and pay no attention to the stings whatever.

Of course, where stings swell on one so badly, as to shut an eye, or the like of that, I presume you might be obliged to stop work awhile, but even then, I would advise paying as little attention to the matter as it is possible to do, and by all means to avoid rubbing or irritating the affected part. I have known stings to be made very painful, by rubbing and fussing with them, that I have good reason to think would have given little, if any, trouble otherwise. You all know that when you get warmed up with hard work, a bruise, a bump, or a slight flesh wound gives little if any pain; but to sit down calmly and cut into one's flesh gives the most excruciating pain. When a lad, I have repeatedly cut great gashes in my fingers with my jack knife, and felt but little pain at the time, but when it became necessary to lance the flesh to get a sliver out of the foot, or to cut open a stone bruise, the pain was the most intense I can imagine.

To pare away with the razor until you get through the skin, and see the blood start—why, it makes my flesh creep to think of it now; but the clips that came unawares with the dull jack knife were scarcely heeded at all, more than to tie up the wound to keep the blood from soiling my work.

Well, the point is, we are to take stings just as we used to take the cuts with those jack knives, in our boyhood days. Of course, we are not to rush needlessly into danger, but when it comes, take it philosophically. I would pull the sting out as quickly as possible, and I would take it out in such a way as to avoid, as much as possible, squeezing the contents of the poison bag into the wound. If you pick the sting out with the thumb and finger in the way that comes natural, you will probably get a fresh dose of poison in the act, and this will sometimes prove the most painful of the whole operation, and cause the sting to swell when it otherwise would not have done so.

I have sometimes thought it might be nearly as well to leave the sting in the wound. I have frequently found them when washing, and the presence of the sting was the first indication I had that I had been stung; but I presume I knew at the time that a sting had been inflicted.

THE PROPER WAY TO REMOVE A BEE STING.

The blade of a knife, if one is handy, may be slid under the poison bag, and the sting lifted out, without pressing a particle more of the poison into the wound. When a knife blade is not handy, I would push the sting out with the thumb or finger nail in much the same way. It is quite desirable that the sting should be taken out as quickly as possible, for if the barbs (to be described further along) once get a hold in the flesh, the muscular contractions will rapidly work the sting deeper and deeper. Sometimes, the sting separates, and a part of it, one of the splinters, so to speak, is left in the wound; it has been suggested that we should be very careful to remove every one of these tiny points, but after trying many times to see what the effect would be, I have concluded that they do but little harm, and that the main thing is, to remove the part containing the poison bag, before it has emptied itself completely into the wound. When I am very busy, or have something in my other hand making it inconvenient to remove the sting with my knife or finger nail, I have been in the habit of rubbing the sting out, against my clothing, in such a way as to push the poison bag off sideways, and although this

plan often breaks off the sting so as to leave splinters in the wound, I have found little, if any, more trouble from them than usual.

REMEDIES FOR BEE STINGS.

For years past, I have taken the ground, that remedies of all kinds are of so little avail, if of any avail at all, that the best way is to pay no attention to any of them. This has awakened a great deal of arguing, I know, and the remedies that have been sent me, which the writers knew were good, because they had tried them, have been enough to fill pages of this book. I have tried a great many of them, and for a time, have imagined they "did good," but after giving them a more extended trial, I have been forced to conclude that they were of no avail. Nay, farther, they not only did no good, but if the directions with the remedy were to rub it in the wound, they did a positive harm; for the friction diffused the poison more rapidly into circulation, and made a painful swelling of what would have been very trifling, if let alone. Please bear in mind that the poison is introduced into the flesh through a puncture so minute, that the finest cambric needle, could, by no manner of means, enter where the sting did, and that the flesh closes over so completely after it, that it is practically impossible for the remedy to penetrate this opening; now, even if you have a remedy that will neutralize the bee poison, in something the same way that an acid neutralizes an alkali, how are you to get the remedy in contact with the poison? I know of no way of doing it, except we resort to a surgical operation, and if you will try that kind of "tinkering" with one bee sting, you will probably never want to try another. I tell you, there is no remedy in the world like letting it alone, and going on with your work without even thinking about it. But suppose we get a sting under the eye, that closes up that very important organ; shall we go on with our work still? Well, I believe I would go on with my work still, and do the best I could do with one eye. If both were closed at once, I do not know but I would wait awhile until they should get open again. I would not resort to medicine and "tinkering," even then, but would let the eyes alone, until they came open of themselves.

If the wound is feverish, or if a person has received a great number of stings at one time, an application of cold water or cloths wet in cold water may prove a relief, but even in using this simple means, I would lay

the cloth on very quietly, and carefully avoid rubbing or irritation. I have often dipped my hand in cold water after having a painful sting, but as my hand ached just as bad under the water (it really ached worse, because I had nothing else to do but to stand there and think about it), I soon dropped that remedy also. A year or two ago, kerosene oil was suggested as a remedy, and two of our friends regarded it of such importance, that they almost got into a controversy about which was entitled to the honor of the discovery. Well, I had a very bad sting on my hand, and I went for the oil can, and dropped oil on the spot for some time; as kerosene will remove a rusty bolt or screw when nothing else will avail, and as it seems to have a wonderful power of penetrating all cracks and crevices, I began to have faith that it might follow the sting of the bee, and in some way neutralize the poison. I had the satisfaction of having one of the most painful and lasting stings I ever got, and together with the offensive smell of the oil, it quite sickened me of that, as a remedy. I presume the oil made it no worse, but it really seemed to me that it must have done so.

In discussing this matter of bee sting remedies, we should remember that the pain of a sting very often ceases suddenly, with no application whatever: those who have been stung a great deal will all tell you that this is the case. Well, the beginner who carries his saleratus water or hartshorn, and always makes an application of some kind, will tell you, and truthfully too, that the pain stopped the very moment the remedy was applied. Again; some stings swell very badly, while others do not swell at all. Well, if an application is made, and no swelling results, he will remember how former stings had swelled, and at once ascribe the difference to the remedy applied. You will see from this, that it is only by repeated trials, extending through a considerable period of time, that we can arrive at the truth. There is one rule that will apply to this, and to a great many other similar matters. If a thing is really good, it will come into general use, and stay there, not only for a few weeks and months, or for a single season, but will be in demand year after year. If I am correct, not one of the bee sting remedies have stood this test. Sooner or later, they have all been dropped, and old bee-keepers get along in the way I have advised—picking the sting out, if they are not in too much of a hurry, and thinking no more about it.

WHAT TO DO WHEN STUNG A GREAT NUMBER OF TIMES, ALL AT ONCE.

There is very seldom any need of such a catastrophe, but as such an event may come about, it may be well to consider the matter. In hiving hybrids, under certain conditions, I have known them to attack the operator in a mass, and sting him most unmercifully. A neighbor of ours was stung in this way until he fainted, and had to be carried into the house. In such cases, I would resort to the usual means to restore the person from the fainting fit, and then extract the stings as speedily as possible, and treat with wet cloths. It is true that death may result from the stings of bees, and if report is correct, a single sting has been known to result in death, in very rare instances. Shall we stop keeping bees on this account? People are killed by horses almost every day, and such cases are comparatively frequent, but did anyone ever advocate giving up the use of horses on that account? Cases that have resulted fatally, or in laying a person up for a time, or have produced fainting, are usually where the person is stung for the first time; after the system gets inured to the poison, its effects are comparatively harmless.

GETTING HARDENED TO THE EFFECTS OF STINGS.

When I first commenced bee keeping, stings swelled so badly and were so painful, that I had either my hands or eyes swelled up most of the time, and I seriously contemplated giving up the business, just on this account alone. After I had had a little more practice, I discovered that there was very little need of being stung at all, if one was careful not to provoke the ire of the little insects. Still further, I found the swelling to be gradually less and less, and before my first summer was over, I very seldom felt the effects of any sting, the day afterward. When first commencing, if my eye was swelled so as to be closed by a sting, it often took until the third day, to have it go down entirely. The A B C class, almost without exception, corroborate this experience.

HOW TO AVOID BEING STUNG.

Some may imagine, from the foregoing, that it is necessary for one who keeps bees to submit to the pain of being stung several times, every day. A short time ago, a lady said that she could never stand it to have her husband keep 100 swarms, for she got stung four or five times a day with only a dozen, and 30 or 40 stings a day would be more than she could possibly stand. Now,

my friends, I think I can take any one of you into an apiary of 100 colonies, and have you assist me all day long, without your getting a single sting. Nay, farther; if you are very timid, and cannot bear a single sting, by taking some pains, you may be able to work day after day, without being stung. The apiary must be properly cared for, and no robbing allowed, and you must do exactly as I tell you. See *ANGER OF BEES*. It may be a hard matter to tell you in a book how to behave without being stung, but I will try. In the first place, avoid standing right in front of any hive; I am often very much tried with visitors (some of them bee-keepers, too, who ought to know better), because they will stand right before the entrance until they have a small swarm scolding around them because they cannot get out and in, and then wonder why so many bees are buzzing about in that particular spot. If you should go into a factory, and stand in the way of the workmen until a dozen of them were blocked up with their arms full of boards and finished work, you would be pretty apt to be told to get out of the way. Now you are to exercise the same common sense in an apiary. By watching them, you can tell, at once, their path through the air, and you are to keep out of their way. Right back of any hive is a pretty safe place to stand.

One of the first things to learn is to know whether a bee is angry or not, by the noise he makes. It seems to me you should all know by the hum of a bee, when it is gathering honey from the heads of clover in the fields, that it has no malice toward any living thing; it is the happy hum of honest industry and contentment. People sometimes jump, when a bee hums thus harmlessly along, and it seems to me they should know better, but I presume it is because bees are not in their line of business, and they don't know "bee talk."

Well, when you go in front of a hive, or even approach hives that are not accustomed to being worked with, one of the sentinels will frequently take wing, and by an angry and loud buzz, bid you begone. This note is quite unlike that of a bee upon the flowers, or of the ordinary laborer upon the wing; it is in a high key, and the tone, to me, sounds much like that of a scolding woman, and one who will be pretty sure to make her threats good, if you do not heed the warning. When one of these bees approaches, you are first to lower your head, or better still, tip down your hat brim; for these fellows almost always instinctively aim

for the eyes. He will often be satisfied and go back into his hive if you move away a little, but you do not want to give him to understand that you admit yourself a thief, and that he has frightened you. If he gets very threatening, and you are timid, you would better go into some building. I am in the habit of opening the door of the honey house, and asking visitors to go in there, when an angry bee persists in following them. Very many times I can hardly get them to go in as I direct, because they cannot see why the bee will not follow them, and thus have them cornered up and a sure prey.

I do not know why it is, but a bee very seldom ventures to follow one in doors. A single bee never does, if I am correct, but a very vicious colony of hybrids, when fully aroused, may do so. I have learned by habit, to know just about when one of these cross bees is ready to sting, and the greater part of the time, I can catch them in the act of inserting their stinger, before I am stung. Sometimes I get a slight prick, but not often. Where there has been no robbing going on, one has usually warning enough, and in ample time, to take precautions. Where the bees are quietly at work, that is, during the working season, there is but little danger from bees in the air. When you are working with a hive, bending right over the uncovered frames, you are comparatively secure from the bees of other hives, for when there is no robbing, bees seem to have no disposition to meddle or hang around their neighbors' homes. This is one reason why bystanders, or those who are off at a little distance, are so much more apt to be stung than the apiarist who is right among them.

HOW TO OPEN A HIVE, WITHOUT BEING STUNG.

Have your smoker lighted, and in good trim, and then set it down near the hive you are going to work with. Now, I would never use smoke with any hive of bees, unless they need it to subdue them, for why should we disturb and annoy the little fellows while quietly going about their household duties, unless we are obliged to? I frequently open hive after hive, with no kind of use for smoke at all, and yet I often see bee-keepers drive the poor little chaps down to the bottoms of their hives with great volumes of smoke, when they had not shown the least symptom of any disposition but the most friendly one. It is true, where the colony is very large, the bees sometimes pile up in the way, on the rabbets and ends of the frames,

so that it becomes desirable to drive them away for their own safety. For this purpose, very little smoke is needed, and if you are in no great hurry, they will clear out of the way, if you just pat them on the backs gently with a weed or bit of grass. If the bees are disposed to be cross, and to show fight, you will readily discover it, the minute you turn up the first corner of the cloth covering, and if it takes smoke to make them beg pardon, give them smoke, but only in small quantities until you are sure more is needed. The top of the hive is supposed to be off, the sheet removed, and yourself down on your knees on the sawdust beside the hive. If it is a chaff hive, you work standing, but lean your body against the hive. With your eye, decide which one of the 10 frames will come out easiest, and slide the rest on the rabbets a little away from it. By sliding two or three on each side, you can have all the room you need to lift out the frame without pinching a single bee. Now this taking out not only the first frame, but any or all the frames, is a very important matter, if you wish to do it without getting stung. Suppose you are obliged to pass through a room, with the floor all covered with babies, creeping about. As you lift your feet and set them down, you will probably exercise some care, for it would be quite a serious piece of business to hit one of the soft little things a blow with the heel of your great, awkward boot. Now I wish you to think it just as serious a matter to mash one of these little innocents while faithfully doing their work in their own home. I know you will say, some of you, that you haven't the time to be so careful, but I tell you God holds you responsible for any needless cruelty you may inflict on these dumb friends. Besides that, you will make more money, to be human and gentle, than if you smash ahead, regardless of everything except the money you can squeeze out of these little creatures. If you can lift out the frames and put them back without harming a bee, you can get along, usually, without any smoke, if you choose. It is much easier to handle a shallow frame, without killing bees, than it is a tall one.

When I see a person opening a hive, I usually watch him carefully, to see if he takes care to kill no bees. After the first frame is taken out, it must be placed somewhere. I believe the usual way is to stand it on end, leaning against the side of the hive. Now the corner of the frame that rests on the ground is very apt to be covered with bees,

and many, many times, after it has been put back in the hive, have I seen the maimed and mashed bodies of the little fellows, writhing in their death agonies. Do you blame bees for stinging when they are treated thus? Why will people be so careless and heedless of the comfort and life of the rest of the animated creation? Within the last year, several devices have been suggested for the purpose of holding the first frame or frames, that the rest may be manipulated with greater ease. These will be found in the July, Aug., and Oct. Nos. of last year, and in the Jan. No. of this year. While these implements are very handy, without question, they are more machinery to have around in the way, and it takes time to run after them and carry them about. I do not know but that I should prefer doing without them, but you will probably have different tastes and views in the matter. I have illustrated them, that you may be able to act according to your own judgment. If you decide to stand the first frame on the ground, be sure that you brush or drive all the bees off the corner that is to touch the ground. Be sure, also, that you set the frame at such an angle that it cannot possibly fall over, or be blown down by the wind. On this account alone, I would want wind breaks of some kind, to keep off the prevailing winds.

If your colony is a small one, and the hive not full, the frames are very easily handled without killing bees; if there is a division board, it can be moved back a little, and the first frame set on the other side of it. All these things can be done very quickly, when you get used to it; much quicker than you could take out a movable side to a hive. I believe experience has taught this with almost everyone that has used hives with movable sides. No matter how sanguine the inventor may be, at first, that his hive is *the* one to prevent danger from stings, in a few years, we find all such hives dropped, and laid aside.

WHAT BEES STING THE WORST.

The general decision is that the pure Italians are, as a rule, the most easily handled. Not only do they sting less, but as they keep their places on the combs without getting excited, when hives are properly opened, they are far less liable to get under one's clothing, than the common bees. A great many stings are received from bees that are in no way badly disposed at all, simply by their getting pinched accidentally, while on the person of the bee-keeper. Pure Italians may be handled all day, with no such mis-

hap; but after working among blacks or hybrids, I often find a dozen or more under my coat, up my sleeves, if they can get up, and worst of all, up my trousers, if I have not taken the precaution to tuck them into my boots, or stockings when I wear low shoes. See BEE DRESS. Well, I believe this one thing alone would decide me in favor of the Italians, if they were simply equal to the blacks in other respects. The hybrids, as I have before stated, are much worse to sting than either of the races when pure.

It may be well to add, that we find many exceptions to these rules; a hive of blacks will sometimes be much easier to handle than a hive of Italians in the same yard, and the progeny of a queen that we may have every other reason to call pure, may be as cross as the worst hybrids. Still farther; a very cross swarm of bees may be so educated, by careful treatment, as to become very gentle, and *vice versa*. The colony in front of the door of the honey house is always a gentle one, season after season; the explanation of it is that they become accustomed to the continual passing and repassing of the bee-keeper in front of their hive, and learn to be dodging past some one almost all the time. On the contrary, those bees that are in the remote corners of the apiary are very apt to sting you, if you just come round to take a view of their entrance. The Egyptian bees are said to be very much worse than any of the other races, and as they do not yield to smoke, as do others, they have been discarded, principally on account of this unpleasant feature.

THE BEE STING POISON.

When bees are very angry, and elevate that portion of their bodies containing the sting, you will often see a tiny drop of some transparent liquid on the point of the sting. This liquid is the poison of the bee sting. It has a sharp, pungent taste, and when thrown in the eyes, as often happens, it has a stinging, acrid feeling, as if it might be a compound of cayenne pepper, onion juice, and horse-radish combined, and one who tastes it or gets it in his eyes concludes it is not so very strange that such a substance, introduced into the circulation, produces such exquisite pain. The poison of the bee sting has been shown to be similar in composition to that of the viper and scorpion; but at the present writing, I cannot learn that any chemist has ever given us an analysis that would tell us just what the poison is. The acid obtained from ants is called formic acid, and I have wondered whether that from bee

stings is not similar, if not the same. It is probably a vegetable acid, secreted from the honey and pollen that constitutes their food, and it is well known that the poison is much more pungent, when the bees are working in the fields and accumulating stores largely, than it is when they are at rest in the winter months. It is generally during basswood bloom, that we get those severe stings which draw the blood and show a large white spot around the wound.

HOW IT IS DONE.

It is quite an interesting experiment to let a bee sting you on the hand, and then coolly observe the whole performance, without disturbing him. When a boy wishes to jump across a brook, he usually goes back a few feet, and takes a little run; well, a bee when he introduces the point of his sting, prefers to make a short run or dash, or he may fail in lodging the barbs of the sting securely in the flesh. I do not believe a bee can very well get up the necessary energy to sting, unless he is under the influence of some excitement. I have sometimes, in trying to see how far I could go with an angry colony of bees without the use of smoke, had a lot of them strike my face with a sudden dash, but as I kept perfectly still, they would alight without stinging. Now the slightest movement, even an incautious breath, would result in some pretty severe stinging; but if I kept cool and quiet, and carefully walked away, I might escape without any stings at all. Very often, a single bee will work himself up to a sufficient passion, to try to sting, but to commence while standing still, I have always found to be rather difficult work for them, and although they sometimes prick slightly and give one a touch of the poison, they seldom sting very severely, without taking wing again. To go back; after the bee has penetrated the flesh on your hand, and pumped the sting so deeply into the flesh as to be satisfied, he begins to find that he is a prisoner, and to consider means of escape. They usually get smashed at about this stage of proceedings, unless they succeed in tearing the sting—poison bag and all—from the body; however, if allowed to do the work quietly, they seldom do this, knowing that such a proceeding seriously maims them for life, if it does not kill them. After pulling at the sting to see that it will not come out, he seems to consider the matter a little, and then commences to walk around it, in a circle, just as if it were a screw he was going to turn out of a board. If you will be patient and let him alone, he will get

it out by this very process, and fly off unharmed. I need not tell you that it takes some heroism, to submit patiently to all this manœuvring. The temptation is almost ungovernable, while experiencing the intense pain, to say, while you give him a clip, "There, you little beggar, take that and learn better manners, in future."

Well, how does every bee know that he can extricate his sting by walking around it? Some would say it is instinct. Well, I guess it is; but it seems to me, after all, that he "sort o' remembers" how his ancestors have behaved in similar predicaments for ages and ages past.

ODOR OF THE BEE STING POISON.

After one bee has stung you, if you use the hand that has been stung among the bees in the hive, the smell of the poison, or something else, will be pretty sure to get more stings for you, unless you are very careful. Also after one sting has been inflicted, there seems a much greater chance, when about in the apiary, of getting more stings. Mr. Quinby has suggested that this is owing to the smell of the poison, and that the use of smoke will neutralize this scent. This may be so, but I am not fully satisfied of it.

DOES THE BEE DIE AFTER LOSING HIS STING?

It seems strange, after all that has been written about it, that nobody seems to know whether the bee dies or not. I know it does not die right away after losing its sting, for I have kept them some time in confinement, afterward, and could not see but they flew off just as well as bees that had not lost their sting. I am inclined to think they live and gather honey after the sting is gone, but they probably never do much more in the stinging line. The matter might be tested by painting the backs of a number of bees which have lost their stings, as we do in bee hunting. If you find them day after day in the hive, and see them with loads of pollen, we will then know that losing their stings does not spoil them for other duties. I have often identified certain bees, both in the hive, and on the alighting board as they came in from the fields.

SMOKE NOT ALWAYS A PREVENTIVE OF BEE STINGS.

Although smoke is our great reliance as a security against stings while working among bees, there are sometimes colonies, or seasons of the year, I scarcely know which, when one can get along better without it. I remember trying to open a colony of hybrids in the fall of the year, to show them to my wife. As a safeguard, I first gave them a good smoking; but, to my surprise, they got into a perfect panic, and poured out of the hive and showed fight, in great numbers. It is true, I could drive them down, but the minute I ceased smoking them, to lift out a comb, they became perfectly infuriated, and although driven down to the bottom board repeatedly, they were up and ready for an attack, almost as soon as the smoker was turned away from the hive. I let them go, without half making the examination I wished. The next day, in passing the hive,

I thought I would look in, and see if they were of the same opinion still. I had no smoker, and so raised the corner of the cloth over the frames cautiously. They kept on with their work, and seemed to care nothing about the intrusion. I took the cloth clear off, lifted frame after frame, but not a bee showed the least sign of hostility. In surprise, I carried a frame with the queen on it, into the house and showed it to my wife, and told her it was the same swarm that acted so wickedly, just the day before. The only trouble seemed to be that they very decidedly objected to having their hive deluged with the offensive smoke, and I am sure it must be very painful to them in its effects. I took the lesson, and have since often found that I could get along even better without smoke. Have your smoker in readiness, and if you are obliged to use smoke, use a very little, as circumstances seem to decide best. Sometimes, the only way seems to be to use it in considerable quantities, but I would never smoke the poor little fellows needlessly.

MECHANICAL CONSTRUCTION AND OPERATION OF THE STING.

After a bee has stung you, and torn himself away from the stinger, you will notice, if you look closely, a bundle of muscles, near by and partly enveloping the poison bag. Well, the curious part of it is, that for some considerable time after the sting has been detached from the body of the bee, these muscles will work with a kind of pump like motion, working the sting further into the wound, as if they had a conscious existence, and burned with a desire to wreak vengeance on the party attacked. Nay, farther, after the sting has been pulled from the flesh and thrown away, if it should stick to your clothing in such a way that your flesh will come in contact with it, it will commence working again, pulling itself into the flesh, and emptying the poison into the wound, precisely as if the living bee was himself working it. I have been stung a great many times, from a sting without any bee about it, at all. Without any precise figures, I should say a sting would hold life enough to give a very painful wound, as long as full five minutes, and it may be, in some cases, even ten minutes. This phenomenon is most wonderful, and I have often, while watching the sting sink into the rim of my felt hat, pondered on that wonderful thing, animal life. Why should that isolated sting behave in this manner, when the bee to which it belonged was perhaps far away, buzzing through the air? Why should this bundle of fibers and muscles behave as if it had a life to throw away? I do not know. This, however, I do know; when you pull a sting from the wound, you should throw it far enough away so that it will not get back on your face or hands, or into your hair, to sting you again.

In giving the following description of a bee sting, I am much indebted to the drawings and description given by J. R. Bledsoe, of Natchez, Mississippi, in the *American Bee Journal* for August, 1870. I am also indebted to Prof. Cook's excellent Manual, for hints on this as well as on many other

subjects. As friend Cook is an entomologist, he has been enabled to give us very material aid in that department. Friend Bledsoe has given us by far the most complete description and drawings, and I have just been trying, with a good microscope, to verify his work. Although I have not been able to verify all his work, probably because I lack the necessary skill in making dissections, I have found some items, which I think have not before been given, and I have made some changes, that I think brings the matter nearer the truth.

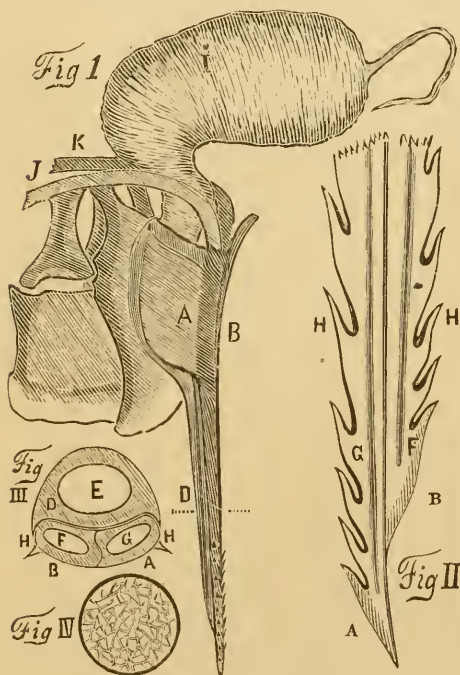
The sting under the microscope is found to be a beautifully fashioned and polished instrument, whose delicate taper and finish make a most surprising contrast with any instrument man has been able to produce. In shape, it appears to be round, but it is, in reality, like a three-cornered file, with the corners nicely rounded off. It is of a dark red color, but transparent enough so that we may see the hollow that runs through the centre of each of its parts. These hollows are probably to secure lightness as well as strength.

commences, and the other spear, B, slides down a little beyond A, then B beyond that, and so on. The manner in which these spears are worked is, as near as I can make out, by a pair of something like pump handles, operated by small, but powerful, muscles. I have shown you the arrangement of these handles at J and K, Fig. 1st, as nearly as I could conjecture what it must be, from watching its workings under the microscope. These muscles will work, at intervals, for some time after the sting has been torn from the bee, as I have explained. They work with sufficient power to send the sting through a felt hat, or into a tough buckskin glove. I have often watched the bee while attempting to get his sting started into the hard cuticle on the inside of my hand. The spears will often run along the surface diagonally, so that you can see how it works down by successive pumps. The hollow in these spears is indicated at G and F, in Figs. 2 and 3.

Fig. 3 is a transverse section, sliced across the three parts, at about the dotted line, D. A and B are the barbed spears; F and G, the hollows to give them lightness and strength; H H the barbs. It will be observed that the husk, D, encloses but little more than $\frac{1}{2}$ of them. Now the purpose of this husk is to hold the barbs in place, and to allow them to slide easily up and down, also to direct them while doing this work. To hold all together, there is a groove in each of the spears, and a corresponding projection in the husk, which fit each other, as shown in the cut. This allows the barbs to project, to do their work, and yet holds all together tolerably firm. I say tolerably firm, for these spears are very easily torn out of the husk, and after a sting is extracted, they are often left in the wound, like the tiny splinters I have before spoken of. When torn out and laid on a slip of glass, they are scarcely visible to the naked eye, but under the microscope, they show as seen in Fig. 2.

Stings do not all have the same number of barbs. I have seen as few as 7 and as many as 9. The two spears fit nicely into each other, as shown in Fig. 3, and you will observe that the shape and the arrangement of the 3 parts leave the hollow, E, in their centre. This hollow is for a channel for this wonderful vegetable poison. The working of the spears also pumps down poison, and quite a good sized drop collected on the points of the spears while I saw them working under the microscope. Friend Bledsoe found a valve that let the poison out of the poison bag, into this wonderful little pump, but prevented it from returning. I have not been able to see this, but have no doubt that it is there. The drop of poison, after it has laid on the glass a few minutes, dries down, and seems to leave a gummy substance, that crystalizes, as it were, into strange and beautiful forms. I have tried to show it to you, in Fig. 4.

There are some things about the bee sting, I should much like to know. How do the muscles work those levers so as to make them pass and repass as they do? Is the bee sting acid, perhaps formic acid? If not, what is it?



BEE STING MAGNIFIED.

I have given you three views of the different parts of the sting, like letters representing like parts in all. Bear in mind that the sting proper is composed of three parts, the outer shell or husk, D, and two barbed spears that slide partly inside of it. In Fig. 2, I have shown you the spears. The barbs are much like the barbs on a fish hook; and when the point of one spear, A, penetrates far enough to get one barb under the skin, the bee has made a hold, and has no difficulty in sinking his sting its whole length into the wound; for the pumping motion at once

Heads of Grain, From Different Fields.

BEES AND HONEY ACROSS THE WATER.

I SAW some fine specimens of honey in Glasgow, but no bees. In Scotland, there are millions of acres of heather, rich in honey, which goes to waste, for want of bees to gather it, the climate being too cold for them. In Paris, I found but a limited quantity of honey, and only 5 black bees working on some ginger-cake; and I could get no information about bees or honey. Yet there was a fair specimen of it on exhibition, but not equal to Hetherington's, of Cherry Valley, N. Y., at Philadelphia.

But there was a splendid exhibit of wax from Italy, consisting of a slab about 6 ft. square, 1 foot in thickness, and white as this paper: on the top was a full grown lion, of yellow wax, with eagles' wings, couchant; around and on the slab was white and yellow wax in bars, and almost every conceivable shape. I gave it up. O. E. WOLCOTT.

Byron, Mich., Dec. 2, 1878.

BEE HUNTING AND MOVING BEES IN THE FALL.

I have cut several bee trees this fall, the first of which was a large rock oak. The entrance of the bees was 50 ft. from the ground, just above the comb. The cavity was 19 in. in diameter, and 8 ft. in height, and every bit of space was filled with comb, but only half the combs were filled with honey, as it was just at the beginning of buckwheat bloom, which is the main supply in that section. It contained about 100 lbs. of honey. I transferred the bees to a Langstroth hive, and they are doing well. Is it possible for one queen to utilize such an amount of comb?

This was about 20 miles from Lewisburg, where buckwheat is largely cultivated. The principal honey supply here, near Lewisburg, is white clover. Do you think it would pay, or would it be advisable, to ship bees there after the clover is gone here, which is before buckwheat blooms? We can ship by freight at reasonable rates. Could we not obtain a double honey harvest in this way?

W. E. YODER.

Lewisburg, Pa., Dec. 16, 1878.

It will pay well, many times, to ship bees in the fall where buckwheat is raised largely. One queen furnished all the bees doubtless, but she would have done better with but a small part of the comb.

LETTER FROM A BOY.

I bought a hive of bees this fall that I paid \$1.00 for, and it weighed exactly 87 lbs. I think I should like to get some more at the same price. They were in a box hive. I took two boxes off the top, that weighed 25 lbs. The comb was somewhat black, as I don't think the man I got them of, had taken off the boxes for some time, and the bees had to store honey in it and then eat it out. Mr. Wheeler, our bee man in this town, said the boxes were not worth taking off; but I didn't think my folks thought so. He said it was a good healthy swarm. They are not pure Italians but hybrids. I hope you will read this letter as I am a small boy of 13 years.

New Ipswich, N. H.

JOHN M. BURTON.

Of course, I will read your letter, and be very glad to get it, for we do not have many 13 year old "bee men."

GETTING NATURAL COMB FOR STARTERS.

After looking over the last three volumes of *GLEANINGS, Magazine, and American Bee Journal*, I find no place to inform me how to get the bees to make comb to use for starters. Of course, drone comb would be preferable, but any nice white comb will do. I want it to use next spring, in time for the honey harvest. Please inform me particularly. As to-morrow will be Christmas, permit me to wish you and yours a happy Christmas. Bees are doing well. Could I not get them to build it during fruit blossoming and buckwheat harvest? Will want much of it in June to use. A. FAINESTOCK.

Toledo, O., Dec. 24, 1878.

Before we had the fdn., I used to save all the little bits of white comb found about the apiary, and in the course of the season, a great many would be collected. Whenever I found a colony building new drone comb, it was carefully broken out and saved, of course removing the frame, so that drone comb building was stopped. If you put an empty frame in the centre of any colony for about 24 hours, you will get plenty of starters, and with a thin light comb guide, you might get them right in the sections, thus saving the time of putting them in. The following is what friend Doolittle says, on page 296, Dec. No. of 1876. Of course, these directions are for the very few who decline to use fdn. for starters.

We should say starters cost not over 50 cts. per lb., taking everything into consideration. Most of them are built at times when the bees would not work in boxes at all; namely, from apple blossoms, dandelion and buckwheat. This is the time to get your comb for starters built, and we should consider it a very poor apiarian that could not get a pound built from each stock during the season, and not reduce the amount of his box honey more than one per cent. Buckwheat honey is at present wholly or nearly unsaleable, and with a good yield, 2 lbs. of nice starters could be secured with ease from each stock during its flowering. G. M. DOOLITTLE.

Borodino, N. Y., Nov. 15th, 1876.

On the 1st of May last I had 26 swarms. From them I have taken 1820 lbs. of honey, half comb and half extracted.

I increased my stocks to 46, and sold two; $\frac{2}{3}$ of my honey is sold at about 16 cts per lb. Honey is plenty about here, but I have sold mine all to citizens. I have regular customers. Loads have been brought in from the country, and sold for 10 and 12 cts., and retailed on the streets at that.

My honey is nearly all clover with a little bass-wood.

70 lbs. to the hive! is not that pretty good for the city, in a location built up all around me, and without having any trouble with my neighbors on account of bees? N. A. PRUDEN.

Ann Arbor, Mich., Dec., 1878.

FREIGHTS ON HONEY, ETC.

Bees did well this summer; I took 4500 lbs. from 63 swarms, and increased to 105 good swarms. They are now all in the cellar. I sold most of my honey in Philadelphia, at 15c., and shipped in your shipping cases by freight safely. The charges were 2c. per lb. from here, while honey from San Francisco to Philadelphia cost to ship only $1\frac{1}{2}$ cts. How is that?

Sterling, Ills., Dec. 26, '78.

A. F. STAUFFER.

I presume it comes about because the Californians have finally succeeded in getting a special through rate on honey, in consequence of their immense production. The R. R. Co.'s very likely make a better profit on that, at $1\frac{1}{2}$ cts., if it is true they have really got it down so low, than on yours at 2 cts., because of the very large shipments.

THE CARELESS WAY COMPARED WITH THE INTELLIGENT AND THRIFTY WAY.

I have just got home from a 2 months' visit west, where sickness, weather and weeds have made poor crops of corn and honey. One man had 10 hives of bees, and I saw the tall weeds standing thick, just as they had grown, all around his hives. He said he had taken only about 10 lbs. of honey from them this year, but intended to brimstone one swarm, and take their honey this month.

On page 304, of *GLEANINGS*, my address was printed Saxon, Ill., when it should have been Toulon, Ill. In Sept., I took 57 lbs. of extracted and comb honey, making 424 lbs. for the summer and fall, from the 3 stocks mentioned, besides increasing to 6 stocks. D. TYRELL, M. D.

Toulon, Ill., Dec. 25, 1878.

DYSENTERY.

What is the matter with my bees? About the 15th of Oct., I transferred one colony from a box hive to an old style Langstroth hive, putting them on 5 frames, contracting brood chamber with 2 division boards, and packing sides and top with cut straw. I also united 3 weak colonies, making one strong one of them, and packed them in the same manner. Since the cold weather, I examined them and found the entrances clogged up with dead bees and ice. I cleaned out the entrances and the bees came buzzing out, leaving the hive and not seeming to have any disposition to return. Some of them would fly in the air 30 or 40 feet, and drop in the snow. I found the alighting board and snow badly specked by the bees. Please give cause and a remedy.

Plainfield, Ind., Jan. 10, '79

JNO. L. GINN.

DYSENTERY, in the A B C, will give you the whole subject much better than I can possibly give it here. I have several times thought that bees transferred late in the fall were much more liable to be thus affected. We should be very careful that the entrances are made in such a way, that they cannot readily become clogged. That of the Simplicity hive is especially advantageous in this respect. Ice at the entrance is a *sure* indication of there not being sufficient upward ventilation through your straw and chaff cushions. Take them in doors and dry them out; give them a fly inside of a frame covered with netting, as given in the A B C; put them back on their stands, with the dry chaff and straw close to the cluster, with some sort of a ventilator under the cover, and, if there are bees enough left, they will fetch up all right.

WINTERING WITHOUT REMOVING THE UPPER FRAMES.

In July, I put a box with frames on the top of a good strong colony of bees, for them to store surplus honey in, and they never stored an ounce all summer but the queen laid a good many eggs in the upper box. Not knowing what to do, I left the box on, which has proven too cold, I suppose, for the bees, for they all died early this winter.

You will oblige me very much, Mr. Root, by telling what I should have done in the case.

If I had taken the upper box off, what should I have done with the combs containing brood, etc.?

I am down to one colony, and would not like to lose that on account of not knowing what to do, in case of a repetition of that sort of work.

MRS. HELENA MADSEN.

Gunnison, San Pete, Utah, Dec. 30, 1878.

If the bees built combs in the upper story, I must think you mistaken, my friend, when you say they stored not an oz. of honey there. At the time of building the combs, they probably had honey there too, but carried it down afterward. If there was brood above, there was certainly some honey around it. After the season had closed, all the frames above should have been removed, and their places supplied with a chaff cushion, or even loose, fine straw. Any colony, except a very powerful one, would suffer, if left all winter with nothing over them but empty combs. When preparing for winter, the brood is always to be put below, in place of some other frame, that has so little honey in it that it can be spared. This is one reason why the lower story should always take the frames used in the upper one. As your lower story was a box hive, you could do nothing but lose the brood, or carry it to some other hive. I should have transferred them, the minute I found myself in such a predicament. Cover your one colony with bags or cushions of chaff, and make them snug and warm, if you have not already done so.

My judgment is, the future for honest bee-keepers is very gloomy and discouraging on account of the improper use of glucose by designing bee-keepers, as it will almost stop the demand for honey.

S. D. HILL.

Mt. Healthy, O., Jan. 20, 1879.

The Humbug and Swindle department is waiting for such designing bee-keepers, friend Hill, and if any body can put me on track of one who has sold comb honey produced by feeding glucose, I shall be very much obliged for the information.

EXPENSIVE MISTAKES.

I don't think it best to trust to memory in everything. I had a hive of bees that needed feeding. A storm came on; I ran out hastily and thrust some candy under the quilt. The storm cleared away; my pets were dead. In my haste I fed the wrong hive. Had I made a note of the number of the hive needing food, the mistake would not have occurred.

F. M. PEELER.

Manchester, N. J., Dec. 24, 1878.

BEES OF EGYPT.

In Stanley's new book, "Across the Dark Continent," is the following about bees, which may be of interest to your readers. On page 387, Vol. II, he says: "On the following morning (June 20), the native brought about 30 lbs. of beeswax, a very dark substance, which, had it not been for the diminutive bees which clung to it, might have been mistaken for pitch. Subsequently, I proceeded myself to the source of supply, and discovered about a hundred weight of beeswax attached to a lofty fragment of rock, near Massassa Falls. These bees are of a dark brown color, short and dumpy, about one-half the length of the ordinary honey bee. At several places, there were similar large secretions of wax, on cliffy rocks."

This place is about 100 miles from the sea, on the west coast of Africa. If some of the bee importers could manage to import them, they would, no doubt, prove more profitable than Italians. It is a pity Mr. Stanley does not state whether they also collect honey, and whether the swarm of insects is in proportion to their immense stores.

Boston, Mass., Dec. 28, 1878.

H. GOETZ.

If these are the same as the Egyptian bees that have been imported to this country, we can hardly consider them equal to the Italians in *all* respects.

WHAT HIVES TO BUY, COST OF THEM, HOW TO ORDER, ETC.

I want to change my bees, in the spring, from the Thomas hive to some other good reliable hive, and want a little advice from you. Now, what I want to know is this: Why do you claim the "Simplicity" to be the best? and what will you furnish them for, ready to nail up? I want 25 on the start; what will they cost per hive? Why do you think them better than the Langstroth? Please answer by return mail.

WM. LOSSING.

Freeland, Mich., Jan. 5, 1879.

You will see, friend L., by reading every No. of GLEANINGS, that I do not call the Simplicity hive the *best*, but admit that there may be other forms that will give just as good results.

We do claim for the Simplicity hive, however, in comparison with the Langstroth, that it is cheaper, lighter, more simple, and occupies less space, while the inside dimensions are the same. Also, one story of the Simplicity always fits over every other story; or, a *two* story hive is always 2 *one* story hives, which is not the case with the L. hive.

It is almost impossible for me to give you prices of Simplicity hives in the flat, unless you read the conditions expressed in the price-list, which we always send free upon application. For instance; do you want 1 or 2 story hives? do you want them arranged for comb honey, or for the extractor? do you

want them furnished with fdn. starters? do you want all wood or metal cornered frames? etc., etc. Many of the A B C class say, "I don't know what I want; what do you advise?" In that case, I advise you to purchase very little to start with. If you haven't much money, get a \$1 hive, and test all these other things one at a time, and you will, in a few weeks, be able to make out your orders understandingly.

ICE IN THE HIVES; WHY?

I have 11 stands, mostly box hives, set close to a board with an entrance 3 in. by $\frac{3}{4}$, and from 6 to 8, inch holes in the top, over which is a cover 6 or 7 in. high.

This winter being unusually severe, I made some straw caps (by tying a bunch tightly together at the top), and spread one cap nicely over each hive, tying a band around below; but this I neglected till after the first cold spell.

Now I notice, in some hives, that the vapor has run down the inside, and frozen so as to close the entrance partly, and some bees are already compelled to leave the hive, and are unable to get home. I fear this indicates dysentery, and will result in a serious loss.

I know Quinby advises to set them bottom up in a room or dry cellar; but we have no vacant room, and our cellar is so cold that water and even turnips freeze to some extent.

I think they all have honey enough, there being only 1 last summer's swarm. Now, what shall I do to save my bees?

I might vacate a room in the house for their reception, if by so doing, you think I can save them.

J. H. YODER.

Leetonia, O., Jan. 16, 1879.

Take off your straw, and let the sun directly on the hives. Open all the holes, and raise the cap a little, so the air can pass through the hive slowly. The straw on the outside of the hive will do no more good than it would on the roof of your house, to keep you warm while in bed. It really does harm, by keeping off the sun. Do not put your bees in a room, by any means. A dark, dry, frost proof cellar is what Quinby advised; but, taking all things into consideration, I would rather risk them out of doors. If you could pry off the whole top of your hives, it would be better; you could then put a bag of chaff right next the bees. This would absorb all the dampness, and allow air to pass through it, and yet, at the same time, keep them warm. Protracted cold weather, such as we have had this winter, is what is making the trouble; but if the colonies are strong, and packed as I have advised, close to the cluster, they seldom suffer. Hives that are near the ground, and completely covered with snow are generally doing the best.

PUTTING BEES IN DOORS, ETC.

In trouble again; I bought 4 colonies of bees this winter, in wretched old "gums," and it being too cold to transfer (5° to 20° below zero), I set them all in an old house I had bought, which is plastered and tolerably warm, and has one window on the east.

Now on the first nice day, they took a flight, and worried around the window to get out; I only learned it, however, upon finding $\frac{1}{2}$ pint of bees dead on the window sill. I had hoped they would find sufficient space in the large room for flight. Now I want to know, first; would you raise the window on nice days, or carry bees out? It is very light in the room. If they go out at it, would they return through it? Bees certainly would have frozen in 15 seconds, the day they tried to get out.

Second; can't I transfer in a good, warm room raised to 60° or 70°, if I have hives, cushions, &c., ready?

DR. A. C. WILLIAMS.

Hugo, Ill., Jan. 2, 1879.

No, my friend, do not hoist the windows, but do "hoist" those bees out of that building, and set them under the broad canopy of heaven, even if it is 20° below zero, at times, and there let them stay the rest of their lives. Every little while, some one of the A B C class kills his bees in just the way you have been doing, by kindness, or what is intended as such. Our veterans will doubtless have a good laugh at your idea of having the bees fly around your large room, and go back to the hives without getting on the windows. My experiments with bees in the greenhouse, given in former volumes, pretty well demonstrated the difficulty of such arrangements. If you put bees into a room with fire in it, they will be sure to fly on the windows and die; if you fasten them in the hives, they will usually worry themselves to death in trying to get out. If you put them in a room with no fire in it, they are, as a general thing, colder on an average, than when out doors, for they are deprived of any chance sunshine that may come. Worst of all, should the weather turn warm, they are sure to get out and die in just the predicament mentioned. Bees should never be housed, unless they can be put into a room that is perfectly dark, and frost proof.

All things considered, I think very much the best way is to leave them permanently out doors on the summer stands protected in the way I have so often told you. An experienced hand can transfer bees in the winter, in a warm room, having but one colony in the room at a time, but you will be very likely to fail, unless you study the subject up most thoroughly.

SALT FOR BEES, ALSO SOMETHING ABOUT GRAPE SUGAR.

Last spring, when I took my pork from brine to smoke, I put the bib and brine out of doors, some 5 rods from my bees, thinking to give it to my hogs as needed. The next day I saw many bees visiting it, and a few days after, quite a line was kept up between it and my apiary. I also found about a pint of dead bees in the brine. I then put a board to float on top, from which they worked well, without loss. So I left it all summer; and as you will see by my report last Aug., my bees did well.

You may think it was water they wanted; but water was in great abundance much nearer. Nor was there any sweetening in the brine, as some use it.

In regard to grape sugar, I have used it with signal success, and shall keep a supply on hand in case of need. I got it last spring, from Davenport Manf. Co., Iowa, in a time of drought, and I did not lose a swarm, while many lost several swarms without it.

Falls City, Neb., Dec., '78.

HARRY PITTOCK.

COMPARATIVE EXPENSE OF CHAFF HIVES AND SIMPLICITIES.

Since getting up the 3 chaff hives ordered of you a short time since, I like them so well, and they are so little trouble and expense after they are once procured, that I have decided to use them altogether, if I can make them come inside my means, and the difference is not too great, to start with, between them and the Simplicity. I can get the Simplicities in the flat in St. Louis' at 30c each, but I am not entirely satisfied with them for winter, as both ends are exposed even with the chaff division boards.

Kirkwood, Mo., Oct. 19, '78.

N. H. ALLEN.

This is a problem, friend A., that many are studying on. I can see no better way, than to have both kinds. The cheap, light Simplicities are always desirable for summer use, even in an apiary where the bees are all in chaff hives, and no inconvenience can result in having both, if all are made on

one size frames. I have studied some, on a Simplicity hive with chaff ends, but there are complications in the way of having the stories fit nicely on the top of each other, that seem to me to render it not desirable to try to make them thus. Our friend, W. R. Whitman, of New Market, Ala., has been writing on the subject, and has offered some good suggestions in regard to the matter. A 2 story Simplicity hive, to hold 20 frames, costs—hive alone without any frames—about \$1.20. A 2 story chaff hive to hold 24 frames costs \$2.50. Taking into account the extra number of frames the latter holds, we find the difference in expense of the two kinds of hives to be just about \$1.00; the expense of painting, inside furniture, and preparing for winter will be about the same with either.

HONEY ON COMMISSION.

I started in the spring with 18 stands of bees, and have, at present, 38 stands, an increase of 20, this year.

I sold my honey for \$50, at a very low price, or it would have brought me \$75. I don't think I will sell honey on commission again, but will try to sell it myself.

JOHN BOERSTLER.

Monterey, Ill., Dec. 17, 1878.

P. S.—The "Home of the Honey Bee" is a very good one, and I hope that you and all the boys and girls that work for you may be kept as busy, during the next year, as your bees.

J. B.

SHIPPING QUEENS IN THE WINTER.

I wrote to you to send me an imported Italian queen, if you thought there was a probability of her getting through safely. I received the bees during a snow storm, when everything was frozen, and from the date of your postal, you must have had freezing weather when you started her. How then could you think the bees could stand the exposure of an express handling without freezing? Of course, you could expect nothing else, and you must have been experimenting at the expense of your patrons.

Well, the queen and court were duly received, in very cold weather, and though benumbed by cold, the goodly quantity of bees kept them all alive but three. I opened them in a close, warm room, on a window pane, and gave them a lunch of fresh honey which, with the warmth of the room, restored them completely.

I reigned the whole group, displaced a black queen, and the imported lady is safely ensconced on top of the frames, under the quilt, where I will watch her until she has acquired the proper scent of the hive, when I shall cautiously liberate her. I fear, however, that my anxiety to save the queen will cause me to do something that will jeopardize her.

Please write me particulars. Is she without doubt an Italian imported queen? If so, how long since she left Italy? Did you change the nucleus in which she was imported, or did she come in the present cage?

Enclosed, I send the \$1.00, as your part of the business is full and complete, as far as the life of the queen is concerned in safe arrival, but I think it was a risky experiment.

GEO. B. PETERS.

Council Bend, Ark., Dec. 1, 1878.

Not at the expense of my customers, friend P., for all shipping of queens, in any weather, is at my own expense. I have lost none as yet, by shipping in cold weather. How natural it is for each one to ask if the queen is *undoubtedly* from Italy. I have, a few times, shipped the queens in the original boxes received from Italy; but as we have had bad luck with such shipments, even after they were opened and examined, we now take every queen from the original package, and introduce her to a hive, and keep her there until she lays, before we dare ship her. I know, full well, how anxious you are, my

friends, that there shall be no mistake in the queens we send you, and we therefore take the greatest pains to mark plainly, the hives containing the imported stock.

PRICE OF BOOKS AND JOURNALS.

Why is it that in this land of printers, ink, and paper, the price of books has not declined in the same ratio as other commodities?

Undoubtedly, this question is a "new departure" from questions generally asked you, but it is one which will interest your readers generally; so, if you see fit, give us an article upon the subject. Being a proprietor of a printing establishment, you are well informed, I suppose.

C. R. BILLINGS.

Randolph, Wis., Nov. 25, 1878.

I have often thought of this matter, my friend, and I have once or twice decided to write upon it, but feared to awaken unpleasantness. Better paper than is used in any common books can now be bought for about 12½c. per lb. Our new press will print about 500 lbs. of the A B C books, in a day. I should think \$10.00 a day ought to pay the pressman, and the interest on the money that the press costs. It takes about 1 lb. of book ink, worth 40c. per lb., for every 100 lbs. of paper. This will bring the cost of the printed book, all ready for the bindery, at about 15c. per lb. Three girls, at an average expense of \$3.00, will bind in paper covers and finish 100 lbs. in a day. This brings the cost of finished books, in paper covers, at about 18c. per lb.

It is rather a hard matter to estimate the cost of the author's work, or of the compositor's; for after the book is once done, thousands of tons can be printed, if they are in demand, at no additional cost. Books that are not in good demand may have to be sold at a good many dollars per lb., to pay expenses. I think an author should be able to get his ideas put into book form, and in good shape too, for a price not exceeding 25c. per lb. He certainly ought to be willing to furnish them to booksellers, at least so it seems to me, for 35c. per lb. This is the rate I have fixed on the A B C books, and GLEANINGS too (as you will see by weighing them), to those who buy to sell again. A fair price, at retail, seems to be universally agreed upon, as about 50 per cent. above cost. If you think this too much, go into the business yourself and sell cheaper. If the books are to be sent by mail, enough is added to cover postage.

By weighing GLEANINGS or the A B C books, you will see that 50c. per lb., postage not included, is just about what you have to pay. Whether you pay more or less for other books, you can easily determine by throwing them on the scales. Books bound in cloth, according to the above calculation, should retail for about 60c. per lb. I would not spend time in arguing as to whether they can be sold cheaper, but rather set to work and do it cheaper. Such arguments are the only ones the world can never get over. The multitudes of boys and girls who are wanting something to do, might be set to making books; folks nowadays, do not require years to learn trades as they once did; our young artisans will copy almost everything they see, if you give them time, and we have one here, who makes a very fair book, even if he is not a book binder.

GETTING SURPLUS FROM BOX HIVES.

Say to H. K., that with a sharp inch bit that will cut smoothly, he can bore any number of holes he may wish, in the top board of his box hives, without any injury; bore down into the combs $\frac{1}{4}$ in. and the bees will fix all right.

It seems to me, where chaff is not plenty, the common cut-tail flag, which in many places is easily obtained, if properly cured, and run through a straw cutter, would make good cushions and a first rate packing, as it is a good absorbent of moisture, and dries out readily.

We have had 3 weeks of steady cold here, so that it has not thawed in the middle of the day at all. Bees are on summer stands, without packing, except in the cap. An old foggy Quinby box-hive man,

Battle Creek, Mich., Jan. 10, '78. J. A. ROBINSON.

BADGES FOR BEEKEEPERS.

I think your objections to badges for bee-keepers are not well sustained. At the meeting of "The Western Beekeepers' Society," we had a badge of a large bee printed on a blue silk ribbon, 2x3 inches, for each member; and I tell you it was a treat to meet one of our badge friends on the street, many of whom we would not otherwise have known. I think we have as good a right to wear pins as any other society; for, are we not a society bound together by ties of common interests? I put in my vote for the bee-keepers pin. Let us have the pin, by all means. Never mind your scruples about it; if they don't buy a bee pin, they will buy some other trinket.

WILL. M. KELLOGG.

Mommouth, Ill., Jan. 20, 1879.

Your reasoning is good, friend Kellogg, but why not have the silk ribbon badge, in place of the pin? They can be got up very nicely, and so cheap that when one gets soiled, we can have another. Please send me a sample, and tell me where they are made. It will be strange if something neat and pretty does not come of it.

BEES GETTING LOST ON THE SNOW, AND FASTENING THEM IN.

I have fixed some 20 hives with chaff cushions, and left them out doors. They seem to be all right so far, except that, when a bright warm day like this comes, quite a number will fly out, and many are lost on the snow. How can this loss be prevented? It is sometimes recommended that the snow be piled about the entrance, and the bees be thus confined to the hive; this does very well for a time, but unless constant care be taken to keep the snow firm against the hive, the bees will soon work their way between the hive and the snow and none will get back into the hive. Tell us how to contrive this matter.

Decatur, Ill., Jan. 17, '79. E. A. GASTMAN.

I do not know how to prevent some of the bees from getting lost on the snow. I used to be very much troubled about it, and feared they would all be lost; but as there seemed a fair colony left, I finally learned to let it pass without worrying very much. Bunking the snow around them, rouses them up, and many times induces them to fly, when they would not otherwise. After trying a variety of ways, I think it best to just let them alone, unless I find the entrance clogged and the bees trying in vain to get out, or something of that kind. You should bear in mind that many bees die of old age every winter, and that they may be found on the bottom board in the spring, or scattered about the yard on the ground, and of course nearly invisible, or scattered about on the snow. In the latter case you see them all, and they seem to be very many; but if you will gather them all up from a given area, you will find there are not so many after all. When colonies are diseased, they sometimes scatter about on the snow and die in great numbers. For experiment, they have been gathered up, warmed and

given a fly as I have directed in the A B C, and found to be all right. This however will seldom pay, unless for experiment. Keep a sharp look out, but beware how you needlessly tinker with them, in cold weather. After they have had a good cleansing flight, it is always safe to overhaul them, and fix their hives and combs, if they need it.

BEE KEEPING FOR FARMERS.

How to attend to the farm without neglecting the bees, or to give the bees the attention they need without neglecting the farm, is the dilemma I have got myself into by studying GLEANINGS, the *Bee-Keepers' Magazine*, Langstroth, etc.

Don't you think an article in GLEANINGS on Bee Keeping by Farmers, would be interesting to many of its readers?

I kept bees 3 or 4 years without any trouble, for about all the summer's increase would die out the next winter, leaving the hives (box) ready made for the next years increase. I got precious little honey though.

JAS. P. GILMER.

Honey Grove, Tex., May 11, 1878.

You are right, friend G. If a farmer has only a half dozen stocks, and cares for them with the latest improvements, they may very soon compel the consideration of the question, which it shall be the farm or the bees. Unless you have help in the shape of boys and girls, or those around you needing employment, it may be best to give up one or the other. It is much better to do one well, than to neglect both. There is one way you can do to keep your apiary within bounds, and that is to sell off, each year, all above a certain number; we have farmers in our neighborhood, who have done this for years past, making a sure profit, year after year. A dozen stocks carefully managed will swarm but little, and where both honey and increase are sold promptly for what they will bring in a home market, it cannot very well prove a losing business.

FEEDING BEES IN WINTER.

I write to ask you what to do for my bees. I want to feed them and they will not eat anything. I tried them on grape sugar, and on syrup made of white sugar, and they will not eat either. They are nearly all dead now, and those that are still alive, I think, have nothing to eat. Please let me hear from you at once.

PETER P. YATES.

Greensboro, N. C., Jan. 16, 1879.

It is quite a difficult matter to feed bees in the winter, especially, when the weather is steadily freezing, and the colonies are weak. They cannot take syrup, because they would have to leave the cluster to get it, and would be frozen before they could get back into it. The only remedy is candy, and it must be given them in small lumps, placed right over or among the bees, and then closely covered with warm, dry woollens, or chaff cushions. Grape sugar can be fed in the same way, but, for reasons I have before given, should not be used unless some honey is present in the hive to be used with it. Colonies can be wintered on the flour candy, with no honey at all. It is a bad policy to allow bees to get out of stores in the middle of the winter. Better attend to all such work before cold weather.

Comb honey will do, of course, if it is handier than candy, but even with that it is risky business unless we have a thaw.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POST-PAID.

MEDINA, FEB. 1, 1879.

And they shall build the old wastes, they shall raise up the former desolations, and they shall repair the waste cities, the desolations of many generations. Isa. 61: 4.

GIVE us a law against adulteration, such as they have in England and Scotland.

GIVE us the names of the bee-keepers who have sold comb honey containing glucose.

It is always a pleasure to me to see things cheaper. The *Magazine* folks have made an arrangement by which we can furnish the *Bee-Keepers' Magazine* and GLEANINGS, hereafter, for only \$1.75.

CAN anybody adulterate either comb or extracted honey, with grape sugar? Leave out the talk, and just do it; of course I mean in the apiary or in your homes, not in the laboratory.

WHILE here, friend Bingham explained to me the manner in which the Bingham & Hetherington honey knife was to be used, and I am well satisfied that for uncapping honey their knife is a great improvement over anything heretofore made.

TIN wood for separators answers, as several have reported, and I, at one time, thought of using them; but as they will be very liable to get broken unless they are very much thicker than tin, and as tin is now so low that it costs less than $\frac{1}{2}$ cent for each section (25c. for a two story hive) we retain the tin.

WE have made arrangements by which we hope to supply, promptly, the *British Bee Journal*, mailed from our office, at \$1.50 per year. In these days of adulteration, it may be well to have a journal from England, even if they do seem to know little more in regard to the adulterated ship load of comb honey than we do.

THE cut of the Rocky Mountain bee plant, given in this No., was copied on a smaller scale from Cook's Manual. The cut of the aster, given in Dec. No., was from King's New Text Book, in the same way. Had these flowers been in bloom when the cuts were wanted, they would have been taken from nature. If the authors or publishers of these works object, I shall of course do so no more.

FROM the way in which the wired fdn. has worked in our own apiary, and from the reports of others, I dare not at present advise its use. If we use very thick fdn., so that the wires are completely covered, I presume no cells of brood would be lost, but the expense of so much wax, I think, makes it, for the present, entirely out of the question. I am, at present, experimenting with very hard paper, as a base for the wax.

OUR friend, Levering, says in the *Los Angeles Herald*:—

"I do not think there has ever been a pound of

adulterated honey shipped from California to Europe, as bees here work cheaper than rascals can afford to. To the credit of California be it said, that she has upon her statute books a law making the adulteration of honey a penal offence—an example that should be imitated by every State in the Union, not only for the adulteration of honey, but for the adulteration of any articles of food, many of which are most fearfully adulterated, in a manner to affect the public health."

A hearty amen to the above.

CONTROVERSIES.

There seems to be an unusual tendency, at present, to indulge in long controversies. I hope you will excuse me, my friends, for declining to publish communications, however good and true, that will stir up this spirit. Those who get engaged or entangled in these discussions seem to lose their usual good, strong sense, and worst of all, seem incapable of being made to see their error; they cannot see how painful the whole matter is to an outsider. If I could see some concession, or some giving up, on one side or both, I would try and have more faith. It seems to me we are ignoring facts, and spending breath on theories. You know how much time was wasted in discussing black bees; would it not have been better for the writers to have started an apiary of black bees and demonstrated their value by tons of honey? Would not quiet work and short stories have been far better?

DURING the months of Dec. and Jan., we have had more losses in the mails than ever before in the same length of time. At first, we thought the deep snows had only caused a temporary delay; but as three clerks in the postal service have been recently arrested, and mail matter found in their possession, many of the letters will probably never come to light. Several advices of money orders are now in our P. O., for which the orders have not yet come. Be patient, dear friends, and state just what your orders were, and I will send the goods at once. All money sent by P. O. orders or registered letters is safe. In case the letters containing money were not registered, I have, several times, sent the goods and asked the parties to remit half the original amount, if they saw fit. Perhaps it will be well to register, or use postal orders, if you wish to be sure of no delay. To save so much expense, it will be well to have neighbors send in their orders together. By this means, money will be saved both ways.

I HAVE decided, since there has been so much said against the dollar queens, to rear all we sell, in our own apiary. The only difficulty in doing this, is that when orders come far beyond our ability to supply, as they do almost every season, we shall get a hail storm of unkind letters, in consequence of the delays. By purchasing, I have been enabled during the past two seasons to ship queens almost the hour the order was received, and the satisfaction to purchasers was such that the business was really a pleasure. By rearing them in my own apiary, I shall know just how the queens were reared, and that the unkind and inconsiderately thoughtless statements made in regard to them, are undeserved, at least in my case. You that have queens to dispose of would better advertise and send them out yourselves, that any who have a complaint to make, may go directly to the one who raised and shipped the queens. Our back Vols. show that some of the largest yields of honey ever made, were from hives containing dollar queens, and I think we shall have no trouble in having them do as well in the future. By their fruits ye shall know them.

Our Homes.

And a man's foes shall be they of his own household. He that loveth father or mother more than me is not worthy of me; and he that loveth son or daughter more than me is not worthy of me. And he that taketh not his cross, and followeth after me, is not worthy of me.—Matthew 10; 33, 37, 33.

ENCLOSE \$1.00 for GLEANINGS. I do not like to leave you, as I started in with your first No., and have every No. since, bound in book form. However, I am frank to say that I am not pleased with GLEANINGS the past year; your contributors are not first class, and I think the energy devoted to the confounded Home Department might be better employed in strictly attending to your legitimate business, apiculture.

Give us as good a paper as possible the coming year, and leave out of sight as much as possible, the capital *I's*. Hoping these remarks will be taken, as they are meant, in all kindness; that you may have a prosperous year; that we (your readers) may have a better GLEANINGS than ever, and not be bored to death with the swishy, swashy, "Home Papers,"—

I am truly &c.,

Granville, O., Jan. 7, 1879.

W. H. SEDGWICK.

P. S.—I could not get Geo. L. Jones to renew; he said he had enough of GLEANINGS. The old reliable A. B. J. was good enough for him.

W. H. S.

Thank you for speaking out your views, friend S., for, although such criticism often stings keenly, one who has a Christian spirit should be able to look up pleasantly and reply gently, even though the criticism be an unjust one. I should be very sorry indeed to bid adieu to any of my readers, and especially to one who has been a subscriber from the first number of GLEANINGS. In our text above, Christ has told us that, in following him, our foes may be of our own household. I have no idea, friend S., that you will ever stand in the light of a foe, but it seems that you, and very likely many others of my readers, may be vehemently opposed to the way I have felt it my duty to conduct a bee paper. Shall I stubbornly set at naught the wishes of my readers? By no means, for such a course would be very far from exemplifying the spirit of Christianity. My duty is rather, to be guided by the wishes and wants of my readers; to study their good, rather than my own. The voice of the people, taken in a proper sense, is the voice of God; and this is one great truth that I have been learning of late. To illustrate my meaning clearly, I shall have to tell some stories. I might avoid saying I—I—I so much, if I made up these little stories, but I confess I do not feel really at home, in telling fiction. I might also tell about other folks, and their faults and failings, but I do not like to do that, for if I use other lives, even by way of illustration, I know, by experience, that I often hurt their feelings. Will you not excuse me, even if I do speak of myself?

At one of our revival meetings, an intemperate man who was quite well known in our town was converted. It was noised abroad, and the little boys on the street were talking about it next morning. Said one:

"I do not believe any such thing."

"Why do you not believe it?"

"Because I just saw him passing along, and he was smoking a cigar."

The boy seemed to feel, instinctively, that a converted man would have some other way of occupying his time, the morning after he was truly converted, than by smoking cigars. I presume the rest of the boys all agreed with this view of the case, and yet they were profane, bad boys. There is something in humanity that points out the right way, even if they are of the most depraved classes; and, when we will hear it, the voice of God speaks out clearly and distinctly from the multitude, even though they be bad men or women. People will disagree widely, as you, friend S., and the subscribers whose letters in regard to the Home Papers might lie beside yours on my table; but, if we listen for the voice of the multitude, quietly and without prejudice, we shall hear the voice of God, saying most plainly whether it is his wish that the work should go on or stop. Father and mother, or those equally near and dear, may find fault and object, but he who loves God and God's work more than all these will often find that his duty lies directly against the opinions of these near and dear friends. If the work is right in the sight of God, friends and aid will spring up in places least expected; but woe be to him who shrinks at the idea of encountering opposition, or losing friends or support, in doing his duty.

Ministers, as well as other people, sometimes call this an ungrateful world; they sometimes tell of how they have labored and toiled for those who are always unthankful. They have labored all their lives for humanity, but have been passed by unappreciated. Somebody else who was undeserving took the credit of all their good deeds, and—"O dear! this is just the way the world goes." Yes, this is the way the world goes, and I think the world did about right. You will excuse the world there, will you not? The world, doubtless, gave them just the credit they deserved. Individuals are sometimes partial, but the mass of the people, never. What one omits, some one else will do. If you are not appreciated it is, doubtless, because you do not deserve to be. Labor for humanity, because Christ has said, "Inasmuch as ye have done it unto the least of one of these, ye have done it unto me;" labor for them for Christ's sake, and for no other reason; have no favorites, be impartial, and the voice of God will soon be heard, through the voice of your fellow men, giving you all the thanks and all the credit you deserve. It is a happy thought, and a happy feeling, my friends, when you can kneel both morning and night, honestly believing that you are having more of the blessings of this world, and more credit, than you justly deserve.

Do you know how Moody worked alone, scarcely thinking, much less caring, what people thought of what he was doing? Do you know how he used up all his money in trying to help others, and almost forgot about himself? He wondered if God had forgotten him. No; I tell you, God had not. Right from among those people with whom he had been laboring came the voice of God, assuring him he should not suffer as long as they had a cent of money, and a crust of bread, and from that time on, they tried to

give him more than he wanted or needed. Chicago soon waked up to the fact that he was doing more to arrest crime in that great city, than all the combined efforts of their great and expensive system of police machinery, because he not only stopped bad men, but he made missionaries of them, and they, in turn, started out doing good too. Did the world forget to say that they approved of his work? Did they pass it all by with careless indifference? They may have done so for a little while, but very soon busy men stopped to note these new reform movements, and skeptics and ungodly men paused to take a view of a kind of religion that was acted out, not preached only, and dropping all views of doctrine, and without stopping to question or argue, they not only proposed to take stock in the work, but did take stock, and set to work to help him. Men who never dreamed of such a thing as kneeling in prayer soon felt the need of a God and the need of prayer too, and followed, without questioning, the simple, childlike plan that Moody pointed out to them.

Moody started out to do God's work for Christ's sake; and for no other reason, did he strive to save the lost. I do not know whether anybody ever called him a hypocrite or not, but if they did, it matters little to him; he knew God would take care of all that, and so he did. Moody had left mother, home and friends, and, in truth, did it because he loved the haunts of vice more, so long as there was a place for doing God's work. Would he have succeeded as well, if he had done it all from a love of approbation, and that he might win a great name? To be sure, he would not; for it is not in the power of any human being, to put on a semblance of Christianity, and wear it very long, without the cloven hoof's betraying itself. Even the little boys in the street would detect the bogus coin, and proclaim it to the world, in almost the very outset, as God has intended they should. But say many, we cannot, all of us, be Moodys. No, indeed, we cannot, and God does not want us to be, but we can be followers of Christ, and can commence this very minute.

How? Well, suppose you are among a crowd who are swearing, quarreling, or telling impure and obscene stories, or even speaking ill of an absent one, with nobody to take his part. Shall you sit still, smiling and pleasant, as if nothing was wrong? Church members sometimes smile, when swearing is heard; perhaps I should have charity here, for I know how hard it is often times, to break abruptly in upon those with whom you are little, if any, acquainted, with a reproof. Yet, if you love God more than anything else, or if you choose to put it in a different way, if you love humanity and the morals of our people and nation more than money, the praise of your fellows, or selfish things, you cannot consistently sit still and look pleasant and unconcerned. Never mind the objections that Satan throws in your way or suggests to your mind. Do your work fearlessly and faithfully; if you have not a gift for this work, ask God to help you, and then do it the best you can. Very soon, you will hear the voice of God speaking approv-

ingly, and that, too, very often, through the very people you have reprovved. Help and encouragement will come, if the motive in your heart is a right one, and one who honestly goes to God for guidance, cannot go wrong very far. Even though persecution may come, clear, sharp, and strong is the approving voice.

It is true, that a course which one most strongly condemns another as stoutly approves, and if there is one lesson that I have learned above all others, during the past year, it is the importance of having a very broad charity. A thing may be related to us, and then the question asked, "Now, is it possible for a man who does so and so to be a Christian?" It may seem to be utterly impossible, but, my friends, be careful how you judge, especially if you have heard only one side. No matter how dark things may look, nor how utterly impossible it may seem that there is room for an excuse, beware how you judge. We are different, widely different, and we do not look at things alike. How often this is illustrated when we try to heal up quarrels; how plainly an outsider can see the unreasonableness of both parties to each other, and yet how blinded, and utterly incapable they each seem of seeing their own false reasoning; it is for these cases, that Christ told us to have mercy, as we hoped to obtain mercy.

Now, where one urges a certain course, and somebody else directly the opposite, what shall we do? Where a large class take one view, and an equally large class the opposite, where shall we find the voice of God? Suppose one-half of my readers declared these Home Papers were out of place in a bee journal, and the other half wished me to go on, what should I do? Ask God in prayer? Most certainly, but how would he answer? Some may say he would impress it on my mind, and there may be those who think God directs by dreams. With all respect to the latter class, I am free to say that I do not think God has ever directed me in anything, by that means. Things are often impressed on my mind, but so far as I recollect now, these impressions often come from the acts or words of my fellow men. The wonderful answer to prayer narrated last month, came through one of my readers, and the message and help was brought by a visitor, and one who made no professions of Christianity. Every human soul seems to have a sense of right and wrong, and through the ruins of a wasted life, there shine, at intervals, especially when something comes up to draw it out, glimpses of God's image.

In the jail, a few days ago, the boys said they could see no reason for prayer. They could not take up a duty, without understanding how it could be of any avail. I tried to tell them if they had faith enough in God to obey when they did not understand all his reasons, they would be pretty sure to obey when they did understand. They still insisted on having a reason which they could fully understand, for everything which they were required to do. Said I:

"Boys, are you sure you will obey in things you do understand?"

They all declared they would.

"What do you think about swearing and profanity? Is it well to have the boys of our nation learn to swear, about as soon as they learn their A B C? If you wanted good trusty men to take care of your business or property, or to enforce our laws, or to educate our children, would you have men who do, or who do not swear?"

"Men and boys who do not swear," said they with one accord.

"There is no mistake about it?"

"None; certainly," said they, as before.

"Now, my friends, we are coming to business; boys, upon honor, and before God whom you have promised to obey when you hear his voice clearly and without any mistake, tell me if you are in the habit of swearing among yourselves when here alone?"

You could have heard a pin drop. They glanced at each other, and cast down their eyes. Not before me, but before God, they confessed their guilt, being condemned by their own consciences. Clear and plain came the voice of God from these men who were on their way to the penitentiary, declaring as their honest convictions, "Thou shalt not take the name of the Lord thy God in vain." Clearly they pointed out the way, but, human like, they followed not in that way.

Do you ever swear, my friend? and you? and you? and you? If you do, dare you advise that the youth of our nation should be taught it? If so, are you not ready to confess this minute, that you are a sinner in God's sight, condemned by the voice of your own conscience?

Is it any trouble for us to decide, in the above case, which is the voice of God speaking through the people? Whether it is the words that consider the welfare of the future of our nation, or the oaths that are uttered because—because what? Why does anybody swear? Can anybody tell? Because they are enlisted in God's work, or because they are enlisted in the Devil's work, and are, in very truth, trying to be the Devil's own?

We do not all swear, but the most of us have our besetting sins, doubtless nearly as bad, in God's sight, as profanity. I wonder how many of us there are who know what duty is, and do it not; who make no especial effort to follow the promptings of right that God has implanted in us all.

It is true, I get occasionally a letter objecting to the Home Papers, but these are few and far between, compared with the steady stream of hints like the ones below.

Our Homes in Jan. No. is the best of any yet. That about treating everybody kindly fits my case exactly. We are hurried so sometimes, that it seems almost impossible to do so, but let's carry a pleasant face if nothing more.

O. F. BOWEN.
Randolph, N. Y., Jan. 10, 1879.

To-day, in looking over back volumes, I re-read with interest those first words that told us the story of the new man—of the change that lead to "Our Homes." My wife and I often speak of the lessons of those Home Papers, and assure you that we appreciate them. With the friendliest wishes for your success, and trusting that you will ever be

sustained by Him who never deserts his true disciples, I remain yours fraternally,

J. P. SWARTHOUT.

Crystal Springs, N. Y., Jan. 13, 1879.

THE HOME PAPERS.—Keep up this department, by all means. I can't tell you how much good they have done me; but, whenever I have read one of them, I lay down the book, with my heart softened toward all mankind. I feel that away off there in Ohio, you have made me a better husband and father, a better citizen, and I hope, a better Christian.

DR. A. H. BRANTLY.

Decatur, Ga., Jan., 13, 1879.

Even those who complain, it seems, read all these papers, and from the way in which they write, I sometimes wonder if they do not read them the very first thing. When they were first started, I expected I should lose subscribers by the course, and was prepared to bear the loss; but somewhat to my astonishment, my circulation has been on a steady increase ever since. At the time I decided on this department, or rather on taking this stand, my circulation did not reach 1,000 at any time in the year; it is now only the 14th of Jan., and our list has already reached nearly 4,000. I will tell you exactly at the end of the month. I do not say this because I would have anyone take up religion in order to make more money by it, but to show that bringing religion to bear on business will never kill the business. The life of GLEANINGS is from the A B C class, and this same class have made astonishing progress; astonishing to myself, and to themselves. Is it not possible that "Our Homes" has helped them to succeed in bee culture? Are not the principles taught there really at the foundation of the success of any business, or we might almost say, any nation? What did the boys in the jail say? Any man or boy who is striving for self control, and to become ruler of his own spirit, will be pretty sure to thrive. Do the arts, sciences, and manufactures thrive most where there are communities of skeptics and infidels, or where there are churches, and where the Bible is read in every house daily? The boys in the jail will answer readily, and mankind, almost in a body, will respond amen to their reply.

My contributors are not first class. In one sense I admit they are not. They are mostly beginners, and as a rule, they have not large apiaries. They are not able to write fine spun theory, and long controversial articles. I pray God they may never be. But they do tell us of their own work at home; of how they save their money by using home made appliances; and how they get yields of honey that might excite the envy of the oldest hands in the business. I have chosen simple, plain articles, with a hope of getting our readers out of the old ruts, and have tried to encourage a spirit of independence; of going to the bees themselves, and working things out by experiment, rather than by depending too much on what anybody writes. I do not particularly care to have the best bee journal in the land. I want mine to be good, and others better. If you or your friend think the other journals better, I have no objection at all. I want to see the other journals do good and thrive, and I am perfectly willing they shall do good in their own way. We are different and

have different tastes. Our nation is broad, and there is plenty of room. The people will always give us all the support we honestly deserve.

I have been absent from my type-writer for about two hours; during that time I made a visit to one of the principal saloons in our place, and finally prevailed on the proprietor to go with me to a union meeting of all our Medina churches. He spoke during the meeting, and said he wanted to be a Christian. A heavy board is now nailed across the front doors of his saloon, his sign taken down, and he did it with his own hands, and of his own free will. Which is better, to take a saloon keeper to jail against his will, or to induce him to go to meeting of his own free will and accord?

My boy, Albert, who has had so many ups and downs, I have been obliged to let go, at least temporarily. After he had been paid off, and started out to seek work more to his taste elsewhere, I plead with him, to keep sober and beware of temptation. He promised faithfully to do this, but rejected the religion of the Bible, declaring he thought Spiritualism better. In vain we talked and argued, for I believe argument is almost always vain. As I could take no more time, I closed the talk in this way:

"Albert, I will demonstrate the religion of the Bible by my daily life, and you may demonstrate Spiritualism by your daily life. If you show that it will keep a man from temptation, raise him above his taste for drink, and make a steady, good citizen of him, such as you have been while going to meeting with me, I will believe in it. Now for God's sake, my boy, do not have another fall; if you can not accept my way, be a man in your way, and let us see you can rule your own spirit."

"All right, Mr. Root. I will be careful; if I get to drinking again, you need not believe any more in Spiritualism."

My friends, can not we close all argument in this same pleasant way? If Spiritualism or infidelity causes a saloon keeper to nail up his saloon, and tell his neighbors that he is sorry for his past deeds and will do so no more, give them to us by all means. People see, and believe, even if they do not admit it in argument, and through the people comes the voice of God, telling, in terms unmistakable, which is the straight and narrow path that leads to His great throne. Come all ye that are weary, and heavy laden; come ye that have struggled against profanity, the love of drink, the love of approbation, or the thousand and one forms in which Satan comes to drag men down, and to make them think it is of no use to try; never mind the things you can not understand, but take hold of the things you do understand, and show your good will. Come and work in the things we do agree on, and God will take care of the rest, as fast as we come to it.

If any man will do his will, he shall know of the doctrine, whether it be of God, or whether I speak of myself.—John, VII; 17.

With pain and sorrow, I am obliged to add that Albert was on a drunken spree almost immediately, and I have just been

told that he has been sent back to his old home in the jail. I have faith that he will become a Christian yet, and stay one, if we are patient and do not get discouraged. It is God's work and not mine, and why need I doubt, or fear to do his bidding.

Honey Column.

Under this head, will be inserted free of charge, the names of all those having honey to sell, as well as those wanting to buy. Please mention how much, what kind, and prices, as far as possible. The prices quoted in our cities for honey are, at present, too low, to make it worth while to publish them. As a general thing, I would not advise you to send your honey away, to be sold on commission. If near home, where you can look after it, it is often a very good way. By all means, develop your home market. For 25cts., we can furnish little boards to hang up in your dooryard, with the words "Honey for Sale" neatly painted. If wanted by mail, 10c. extra for postage. Boards saying "Bees and Queens for Sale," came price.

MY customers appear to be all supplied with honey for the present, and I have 1 barrel left which I should like to dispose of. Can you please tell me of a buyer at 9 cts. per lb.? It is excellent in quality. FRED. T. NUNN.
83 Public Square, Cleveland, O., Jan. 4, 1879.

O. Brumfield, of Brumfield Station, Ky., will deliver honey at Railroad, in new, iron hooped, waxed barrels, at 10 cts. per lb. This honey was all made before July 1st, and is very thick and fine. No charge for barrels. Jan. 20, 1879.

I have a 32 gal. barrel of extracted honey, from autumn wild flowers (golden rod, aster, etc.), and candied solid. Would take \$25.00, delivered at railroad, and include the barrel. Will send sample of honey if required. [This would be about 7c. per lb.] Hudson, Mc Lean Co., Ill. EDGAR SAGER.

Humbugs & Swindles,

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

THURBER admits that he has adulterated extracted honey with glucose. I have shown up three different parties, in the Humbug and Swindle department, in back volumes, for this same fraud, and there is room for more, if you will only give their names right out. The innocent have nothing to fear.

There seems to be a terribly mixed up state of things in regard to grape sugar. From the reports, I supposed, of course, that some one (or many) in our country had been feeding glucose, and had succeeded in getting nice looking comb honey in sections; yes, even a ship load. If anybody ever deserved a place in Humbugs and Swindles, it would be the men who had done this. The matter, like the statement that several hundred colonies had been killed by grape sugar, has been dropped right there, and no one knows where it came from. If anybody does know, will he not speak out? I am ready to help ferret out fraud, but I cannot

waste time on wild goose chases. Such kinds of business cannot be managed with such secrecy that they can not be found out.

The *Scientific American* of Jan. 25, contains the following:

The accusation of adulteration made by certain parties against several of our largest refiners of sugars has, according to Mr. Wells' recent report on the subject, no foundation in fact. Careful tests have been made by the highest chemical authorities, which seem to verify his statements.

Now is it the learned chemists who have been paraded through our newspapers so much of late, or the *Scientific American*, that deserve a place in Humbugs and Swindles? There is no room for excusing both parties. Aggassiz and Tyndal are not the only ones who have talked learnedly of subjects upon which they had no practical experience. Is it for the sake of a brief newspaper notoriety that men have written so foolishly?

Mrs. Cotton has finally sent the bees to one of her customers, and I am very glad to say that she also sent the interest on the \$20.00, for the year that she held it. They were promised several different times, before they were sent, but she did send them finally. These bees were to the lady mentioned in our Nov. No. I do not know how far the notices of her work in GLEANINGS, July, '77, may have influenced her, but I do know there are a great many more of us waiting patiently, especially, for that wonderful book. I shall be very glad to give her credit as fast as things are fixed up.

ON ANOTHER VISIT

TO A BOX HIVE MAN.

OUR objective point was the apiary of Mr. Jessie Keech, Fort Ann, N. Y., consisting of 376 swarms. Mr. Keech is one of our old fashioned bee-keepers. His bees are in a box hive, having a capacity of 2,000 cubic inches. Surplus honey is obtained in large, rough boxes, holding 12 lbs. each, and no glass in the ends.

His method of finding filled boxes is to go from time to time, and rap with his knuckles on the top of the box; if it does not resound, he guesses it is full and off it comes. This might be termed the watermelon process.

Mr. Keech's pasturage is good; the mountains near him give an abundance of chestnut and basswood bloom, and the rich farming country in front of him gives willow, clover, asters, etc. He claims that the pollen from the many varieties of willow soils his whitest honey. Chestnut also gives a dark honey, and comes in with basswood.

Mr. K. "reckoned he'd never had no luck with movable frames and other ternal fixins'." He liked the good old way, and reckoned he would get about 20 lbs. per swarm; but honey, which, to our mind, is a sure test of a bee-keeper's prosperity, we saw none of.

Mr. K. also "reckoned" he had a lively time when they were swarming. When he saw a swarm "billin' out," he "hollered" for Gus., Phebe, and the "old woman;" the dog and cats edged round too; they were all bnsy, and "sich a roarin'!" Mr. K. said it made him "nervous to think on't."

Mr. K.'s colonies seemed to be all strong, and many had built comb under the benches upon which they were standing. He winters in a not over dry cellar, and packs them in close.

This section of country, owing to large tracts of forest, is quite prolific in wild swarms, and we think these mountains catch swarms from many miles to the east of them. We saw one hive 12 feet tall; it was a log cut from a tree, and was then chained to another tree.

Mr. Adams informs me that he has frequently

found swarms clustered under large limbs, where, from the quantity of comb, he judged they had settled for life; at other times, rocks and stumps were their hiding place. In one instance, a swarm was found in a limb, 13 feet long, six inches in diameter, and filled with comb the entire length. Isn't this the longest hive on record? and ought it not to satisfy both the tall and shallow hive advocates?

This region is on the east shore of Lake George; is sparsely settled, and the black bear and deer are frequently found.

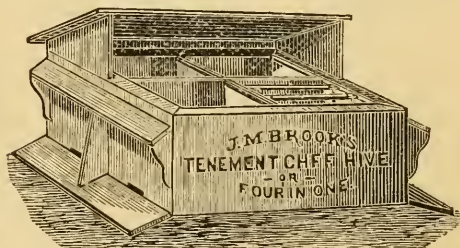
We did not visit Mr. Adam's own apiary. His apiary is located on the very last part of the creation; the people carry ladders around with them to climb over the rocks. They would, no doubt, give a large reward for the invention of a flying machine. (We would say that the above, about Mr. A.'s location, is, as Artemus Ward has it, "sarcastical.")

Hartford, N. Y.

J. H. MARTIN.

MORE TENEMENT CHAFF HIVES.

SEND you a pencil sketch of a tenement hive, or "four in one," as we call it. I wintered 4 colonies in it last winter, and can say that it was a success. There were scarcely any dead bees to be found at any time during the winter; while a colony left out on the summer stand, without protection, as an experiment, lost as many as $\frac{1}{2}$ gallon.



I think this plan for a tenement hive the handiest for the bees and their keeper, of any I have seen described yet. It is packed 4 in. all around with chaff. It has 2 alighting boards, 12 in. wide, and running across the fronts of each 2 colonies, enabling the over-laden bees to crawl up into their hives, without taking wing.

You will see by the drawing, that by taking off half the roof, we have colonies No. 1 and 2 before us, the frames in each running from right to left, the best position for handling. It has a portico at each end, protecting the bees from sudden dashes of rain, as well as shading the entrances from the sun. The division in the portico keeps the bees from mixing, although I don't think any harm would be done if they should mix. The roof is made in two pieces, and pitches from side to side as shown. It parts at the gables, and either half can be slid off.

This hive contains 40 brood frames and 112 prize boxes, 10 of the former and 23 of the latter to each colony. This hive stood out in the sun last summer without shading, and the bees lay out less than those in single hives that were shaded. In winter, I put a quilt and good thick chaff cushion on each colony, and never had bees winter better.

JOS. M. BROOKS.

Columbus, Indiana. 1879.

I have given the above, principally, because it seems a very handsome hive. Perhaps we pay to little attention to taste and symmetry; where the looks can be improved by little or no additional expense, I think it well to consider the matter. If you let the bees mix, friend B., you will stand a great chance of loosing those beautiful queens you raise; keep your divisions in the portico, and I would have those divisions between the hives, extend clear up to the roof of the cap, if it could be done. Our Medina bee-keepers almost discarded double and quadruple hives, several years ago, just because the bees would mix and eventually form one colony, if we did not watch them closely.

TABLE OF PREMIUMS.

The first column is for those only, who send 5 or more names.

Names of Premium Articles.

Prices of
Premiums
Number
of Sub-
scribers
required
at or
at 1.00

Any of them sent post-paid on receipt of price.

1—A B C of Bee Culture, Part First.....	25	5	2
2—Lithograph of Apiary, Implements, etc.	25	5	2
3—Photograph of House Apiary.....	25	5	2
4—"That Present," Novice and Blue Eyes	25	5	2
5—Emerson's Binder for GLEANINGS, will hold 3 Volumes.....	50	6	3
6—" " better quality.....	60	7	3
7—Pocket Magnifying Glass.....	60	7	3
8—First or second Volume of GLEANINGS..	75	7	4
9—Best quality Emerson's Binder for GLEANINGS.....	75	8	4
10—Double Lens Magnifier, on 3 brass feet	1.00	9	4
11—Photo Medley, Bee-Keepers of America)	00	9	4
12—First and second Vol. of GLEANINGS..	1.50	10	6
13—A real Compound Microscope, beautifully finished, and packed with Implementations in a Mahogany Box.....	3.15	20	8
14—Opera Glass for Bee Hunting.....	85.00	25	10
15—American Silver (Waltham) Watch	\$10.00	50	20

Machinery for Making Section Boxes.

There is such a demand for Saws and Mandrels for this purpose, that I have been obliged to have them made expressly for the work. A B C, Part II, considers the whole matter. A mandrel, suitable for holding the whole 8 saws at once, must be very strong and heavy, or you will have much trouble with the bearings getting hot. Such a mandrel, including 5 in. saws and washers, will cost \$27.50. For only 4 saws, a lighter mandrel will do, and the whole rig will cost \$16.00, with 4 inch saws. A single saw can be run on the light \$5.00 mandrel, and the entire expense will be only \$6.50. The latter can be sent by mail, for 70c. extra. Four inch saws, \$1.50 each; 5 in. \$1.75 each. Steel washers accurately ground to go between saws, 50c. each. A. I. ROOT.

POCKET RULES.

Since writing about the importance of each person's having a rule of his own, I have written to the manufacturers of rules, and find I can get them, by the quantity, so as to send you a very pretty, 1 foot, boxwood rule, 4 fold, for the small sum of only 12c.; and a 2 foot rule, same kind, for only 20c.

A. I. ROOT, Medina, O.

GEORGE GRIMM,
JEFFERSON, WISCONSIN.

Hereby respectfully gives notice to the public, that his Circular and Price List of Italian Bees, for the year 1878-9 is ready; and that he is selling bees at his usual low prices. 10-3d.



BARNES' PATENT FOOT POWER MACHINERY!
CIRCULAR and SCROLL SAWS.
Hand, Circular Rip Saws for heavy and light ripping. Lathes, &c., &c. These machines are especially adapted to **Hive Making**. It will pay every bee-keeper to send for our 64 page Catalogue. **Machines Sent on Trial.**

W. F. & JOHN BARNES,
Rockford, Winnebago Co., Ill.

Glass for Bee-keepers.

Glass, 8x18, for large shipping cases, 7c. per sheet; or \$3.00 per box, in boxes of 50 sheets.

Glass, 8x13½, for small shipping cases, 5c. per single sheet; or \$3.00 per box, in boxes of 66 sheets.

Glass, cut to any of the sizes used by Beekeepers, for \$3.00 per box.

At this price, each box must contain but one size. Glass in full boxes, shipped from Pittsburgh.

A. I. ROOT, Medina, O.

Italian Queens.
1879.

Price, April, May, and June, each.....\$3 00
" July, August, and September.....2 00

STANDARD OF PURITY.

All Queens guaranteed to be of good size, vigorous, producing workers, large and uniformly marked with three distinct yellow bands, of fine golden color. No circular. A. F. MOON,
Rome, Ga.

GRAPE SUGAR.

Superior, double refined Grape Sugar, for feeding bees, @ 4c. per lb. in barrels of 375 lbs., and 4½c. in boxes of 50 or 110 lbs.

The above prices are for sugar shipped from Medina. If ordered from the factory, at Davenport, Ia., the price will be ½c. per lb. less. Any amount less than 50 lbs. will be 5c. per lb. Instructions for feeding it to bees sent free. Sample by mail, 10c.

A. I. ROOT, Medina, O.

Tin for Separators and Extractors.

As we buy in large quantities, I can perhaps give you better rates than you are getting at home.

Price per box of 112 sheets, size 14x20, for Separators and small cans for honey.....\$6 00
" sheet, for less than a box.....7
IX tin for making Extractors, 14x20, per box 8 50
" per sheet.....9

We will ship it from Medina, or from Philadelphia, as may be most convenient.

A. I. ROOT, Medina, Ohio.

Poplar Sections Cheap.

Dovetailed Sections, 4¼x4¼, 2 in. wide, per M - \$6

Comb Fdn. 45 to 55 cts. per lb. Also Queens, Bees, Honey, etc. Wax worked up to order, at 25 cts. per lb. I will take good yellow Beeswax in exchange for Comb Fdn., and allow 30 cts. per lb. delivered here. Circular and price list free. Sample Section by mail, 5 cts.

REINHARD STEHLE,
2d Marietta, Washington Co., O.

Sections! Sections!

Before ordering your Sections, send a 3c. stamp for a sample of our snow white, poplar wood, Section Box, so much admired by all at the National Convention. Any size made to order. Price greatly reduced. Circulars free. A. E. MANUM,
2 Bristol, Addison Co., Vt.

BEES FOR SALE.

50 Colonies Italians in Langstroth Hives, - \$6 00
50 " Hybrids " " " 5 00
100 " Blacks in Triangular " " " 3 00

Will deliver in good condition on any Miss. River Packet. The stocks are worth the price for the honey they contain. GEO. B. PETERS,

11-2d Council Bend, Arkansas.

ONE HUNDRED COLONIES

PURE ITALIAN BEES, FOR SALE CHEAP.

Queens all bred from Imported Mother.

QUEENS & HONEY IN SEASON.

Send for Circular. Address C. C. VAUGHAN,
2tf Columbia, Tenn.

GLEANNINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VII.

MARCH 1, 1879.

No. 3.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.
Established in 1873.

TERMS: \$1.00 Per Annum in Advance; 3 Copies for \$2.50; 5 for \$3.75; 10 or more, 60c. each. Single Number, 10c.

SCRAPS AND SKETCHES. NO. 3.

HURRAH FOR FOUNDATION!

IF there is anything in my apiary that makes me feel like swinging my hat, it is the sight of combs built upon fdn. They are so nice, true, and even; not a drone cell unless wanted; combs built and filled with honey in 3 days; and all these advantages secured at a cost of only 7 or 8 cts. per comb.

The first sheet of fdn. that I put into a hive was given to a strong swarm, and I guess every "dear little creature" in the hive wanted to see that "new-fangled improvement," and, then, Yankee like, wanted to feel of it, to taste it, to smell it, and, lastly, wanted to go to work drawing it out into a nice yellow comb; the result was, so many wax workers and "hangers-on" congregated upon the fdn., that it broke in two, about an inch from the top bar.

Well, instead of sending back my 10 lbs. of fdn., and then rushing into print to warn the public, by informing them that fdn. was a brilliant failure, I "rushed" for what "print-ed" bee-matter I had, and set my wits to work, to discover a remedy. In J. H. Nellis' circular for 1877, I found the following:

"We insist that the sheets be only $\frac{1}{8}$ inch short at each end, and explain the reasons as follows: the bees commence to lengthen the cells and fill them with brood and honey, from the center of the sheet, and work towards the edges. When the space at the ends is only $\frac{1}{8}$ in., the bees work out the edges (the sagging occurs when they first commence to work the wax) and fasten it to the end bars, before the sheet becomes so heavy that the top part cannot sustain the weight, and either sags or breaks altogether."

On page 185, Vol. II, of GLEANNINGS, D. B. Baker writes as follows:

"The bees always begin at the top to build them out, and, with me, always complete one side ahead of the other. This will cause the sheet, sometimes, to balance over toward the uncompleted side, and as soon as the corner touches, or nearly touches, the side bar, just so soon will it be fastened. Now, as the bees go on finishing this side, of course it stretches, and as the corner is fastened, a bulge will occur just above. I found mine not only bulged as stated, but the opposite side was stretched too long, causing another large bulge. My remedy was, to cut it loose from the bottom bar, and take out about $\frac{1}{2}$ inch; also to cut the corner loose and take out $\frac{1}{4}$ in. of comb. This lets it swing clear until completion."

Of course, I wanted my fdn. to "swing clear until completion," and if the lower corners had got to be clipped, why not do it when cutting out the sheets; but then, Nellis says the fdn. must be only $\frac{1}{8}$ in. from the side bars, or it will sag and break down. Ten minutes thinking enabled me to effect a compromise, and in 2 more minutes I had a sheet of fdn. cut in such shape that it almost touched the side bars 2 in. down from the top, then it gradually tapered as it neared the bottom, where it lacked about $\frac{3}{4}$ of an in. of touching the side bars.

Fdn. cut in this shape proved to be the thing; I had about 120 combs built, and there was no more breaking down, and no kinks or bulges.

As my frames are $11\frac{1}{4}$ in. deep inside, I cut the fdn. $1\frac{1}{4}$ in. short at the bottom, and the combs usually stretched enough to nearly touch the bottom bar; but they were all as nice and straight as a board. I presume this management would not be necessary with shallow frames. The fdn. was fastened into the frames by tacking a strip of wood $\frac{1}{2}$ by $\frac{3}{4}$ into the top bar, with the upper edge of the sheet between them.

To sum up, I will always have my combs built upon fdn.; and if I can't get the money to buy it, in any other way, I will sell some of my bees.

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

The plan you mention, friend H., or a similar one, has been given before by somebody; for deep frames it is doubtless an excellent idea, but we have had such nice work with the sheets as we make them for the L. frames, that hardly anything more is needed, unless it is something to make them strong enough to ship. At present, I am inclined to think the fine wire, woven in the frames as described in Aug. No., of last year, the most feasible. Even if the queen does skip a cell now and then, she may use these same cells, after the comb gets a little older. The matter needs a thorough testing, and it will have it very soon.

THE HIVE I AM NOW USING;

ALSO SOMETHING ABOUT INVESTING IN PATENTS.

IHAVE been engaged in bee-keeping, from my "pop-gun" days to the present time. Indeed, work pertaining to the care and management of the apiary is about all the work I take to kindly, and with all the trials and failures incident to the fascinating pursuit, the profits from the trade have most liberally replenished my exchequer.

The greatest bane to my success has been my foolish desire to purchase and test the many patented hives that have been brought to my notice. About the worst take I got was at the Ohio State Fair, at Columbus, where I had the misfortune to meet the King Bros., with their famous Am. hive. Perfectly captivated was I, by the superb arrangement, so much so that I danced to the tune of \$75. for rights, and material ready to put together. At that memorable time, I was using the old style, eight frame, Quimby hives, and right good were they, "you bet," as friend Beal would express it; but then I had learned something at the fair, and must make haste to transfer my bees to the new wonder.

After all were transferred into the marbled Am. hive, I felt happy. All I had to do, when the lower box was partly filled, was to raise it "gently" and "slip" the other under, and so on, *ad infinitum*. Gracious! what a sublime arrangement! But, like friend Hutchinson, I soon found I had been sold outright.

My greatest objection to the Am. hive is that it is a fraud in nearly every respect, as I see it. A closed

top bar frame is a perfect nuisance, and, indeed, frames so constructed as to be kept at fixed distances must fail to give the best satisfaction.

My varied experience with almost every form and size of frame has brought me to the conclusion, that any depth of frame greater than 9 or 10 in., at most, is unprofitable; and just in proportion to the increase of depth in a frame, beyond this limit, there will be a corresponding decrease, as a rule, in the amount of honey stored in surplus boxes.

Last spring found me with 70 colonies of bees, and using only 9 different styles of hive. Thirty colonies in Am. hives gave me but little more honey than I obtained from 9 chaff hives containing 10 L. frames.

I have been so well convinced of the superiority of the L. frame and Simplicity hive, that I have transferred all my bees into this hive. Although the expense and labor of the improvement was pretty heavy, and trying to the patience, I do not regret it, as I now have the satisfaction of having 80, ten frame, Simplicity hives, and every frame exactly alike, all in hives painted white, which is a satisfaction to the person having to work with them, and to a person of good taste, a pleasure to look upon. It is an easy matter for me now to examine my bees and know their condition, by simply turning the quilt back, instead of taking off a movable side and then removing all the frames, as is the case with frames constructed on the closed top principle, and having a greater depth than nine inches.

J. A. BUCHANAN.

Wintersville, O., Jan., 11, 1879.

My experience has been quite similar to yours, friend B., and I do not know but that I have arrived at pretty much the same conclusion.

Ladies' Department.

A LESSON IN BEE CULTURE, FOR WOMEN.

ALSO A LESSON FOR INVALIDS.

HAVING finished another very busy year, our bees having increased to 300 colonies, now, as they are sleeping in the cellar and in snow banks, I will write you how we (ourselves and the bees) are getting along.

Last spring, we started with 185 colonies, in 2 apiaries $5\frac{1}{2}$ miles apart. Mr. Axtell and myself took care of the bees at home, 135 colonies I believe, and the 50 at the Burwie apiary, our nephew went over each day to look after. They are in timber, and consequently had access to a considerable wild fruit bloom, which caused them to throw off 2 large swarms in apple blossom time, which were returned.

SUGAR FEEDING AND PUBLIC OPINION.

The bees all increased very fast, but stored only a very little honey in fruit bloom. Then a cold spell of weather came on soon after, which retarded the white clover bloom, and our bees came near running out of food. We fed over a barrel of honey, and feared we would have to resort to sugar feeding, which we would have disliked very much to do, as the people in our vicinity, far and near, are very suspicious of any who feed sugar to their bees. We have quit it entirely, and would advise anyone who wishes to build up a home market for extracted honey never to feed sugar, and to extract and sell only white honey. If the honey is dark let it candy.

EXCESSIVE SWARMING.

Although the season seemed early, swarming was later with us, than the year before; but when it did begin, it was in real earnest. We never had such swarming; nearly every colony swarmed, except extracted hives. At first, we began putting 2 empty frames in the center, cutting out queen cells, and returning the bees, and using the 2 center combs taken out to make nuclei, &c.; but soon we had to abandon that way of swarming.

The bees, in a day or two, would be on the wing again, in many cases, having scarcely entered the boxes. Then we took to putting a swarm into a new hive, giving them 2 brood frames, and filling up the hive according to the strength of the colony with

boxes and empty frames. We think we failed in not giving the bees sufficient room at the beginning of the honey harvest.

CAUTION ABOUT CLOSING HIVES IN SWARMING TIME.

We melted and destroyed 3 colonies, by closing the hive for a few minutes, to prevent swarms from going together. This plan we soon abandoned, and would warn people to beware of closing the hive in hot weather, even if ventilators are open as ours were. Two of the hives had wire cloth on the bottoms of the hives, as large as my two hands; but the colony was strong and all agitated, which causes them to get very hot in a few minutes.

Afterwards, we were very careful to catch the queens, and then let swarms go together. The first swarms would always come back, generally to one or two hives; then we would divide them. We have had as many as 6 swarms in the air at once, and 35 swarms in a day; but many of the swarms were put back into the hive they left.

PREVENTION OF SWARMING BY USING EXTRACTOR.

Of 20 hives, run for extracting, only 4 swarmed. They were allowed to settle in a box, in front of the hive, and the honey was extracted from above and below, and the swarm returned.

For extracting we put a top box on our Quinby hive, raising it just high enough to receive another row of brood frames on top. We generally extract only the top frames, and are not bothered much by the queen's going into them, if they are fastened a little farther apart than the lower frames.

We like top frames much better, to extract from, than side frames; but if a division board is put between the brood frames and extracting frames, it will always prevent the queen from going on to the extracting combs, or boxes of comb honey.

DIVISION BOARDS FOR THE QUEEN.

Mr. A. makes the division boards of lath, nailed just wide enough apart to let the bees pass through, and no wider; if wider, it will cause the comb honey to be bulged.

For several weeks after the white clover was done blossoming, the bees scarcely made a living.

The bees at the other apiary, in the timber, got some linn honey, though not enough to amount to much, either last season or this; but still, even a little of it is a great help to the bees, because it promotes brood rearing.

We got a good harvest from the buckwheat and fall flowers, about as much as from the white clover.

BEES VERSUS DOCTORS AND MEDICINE.

I have been an invalid for about 21 years; have been to water cures and medical institutions 5 different times, and have spent hundreds of dollars upon doctors' bills, but have never been benefited so much as I have been by the care of bees, during the past few years.

Now, from the beginning of warm weather, when bees may be handled, until they are packed with straw for winter, I am out working with them, all I am able, almost every day, Sundays excepted. This year, in swarming time, even Sundays could not be wholly excepted.

If I am not on my feet working with them, and must lie down to rest, I have my couch in their midst, where I can watch swarming. I also nail the surplus boxes. We like nailed boxes better than dovetailed, for one reason, because I can have the starters all on, with no danger of the boxes being "wapper-jawed."

We hire a housekeeper, and I give my whole time to the bees. I find it profitable medicine, and am in hopes that the out door exercise and the stings of the bees will in time, with God's blessing, wholly restore my health. I feel that it has been in answer to prayer, that my health has been so nearly restored.

My husband often tells me I would rather work with bees than do anything else, and I confess I do feel a good deal of enthusiasm in the work, and do not fear their stings, when properly protected, more than I would fear caring for a flock of chickens. I like best to have my face protected with a wire cloth sewed in the front of my sunbonnet; it is cooler to the top of the head, if the bonnet is flaring, than a hat.

BEE DRESS FOR LADIES.

I like also to have on a large apron, made out of denim, reaching to the bottom of my dress, with a bib in front, and straps to go over the shoulder and

cross in the back, a belt to button around the waist, and long, deep pockets; a brush of leaves or twigs (not asparagus, don't like it) tied to one side with a long stout string, and a stiff case knife tied to the other side; a small bladed pocket knife in my right pocket, a lead pencil and a bit of writing paper for taking notes, in my left pocket, and a handful of dry wood for my smoker.

I like to have 2 of these aprons and wash out, every evening, the one I have been wearing through the day. Having things tied to me saves my steps, and I do not lose them in the grass.

GRASS VERSUS SAWDUST.

I think I should like grass better than sawdust, because it is so cleanly and pretty, and there is no danger of its getting on fire. By the way, we have already burned up 2 colonies of bees; the quilt of the first one took fire from a piece of rotten wood, and the last one from the Bingham smoker. The hive was saved, but combs and bees were destroyed. Before getting that thick apron I often used to set my calico dress on fire.

HOW TO STOP ROBBING.

I like best to stop robbing by wetting cloths, and wrapping them around the hives. Nothing is better than an old shirt, cotton or woollen; clasp the bottom of the hive with the sleeves, and throw the skirt of the shirt over the top. If robbing badly, lean a board against the front of the hive, and have the cloth dripping wet.

I work right ahead with bees, for hours in robbing time, by covering each hive over in that way. As soon as done with a hive, skip over, each time, to the farthest hive from the one last opened. After an hour or so, you can take off the first cloth.

HOW TO SELL THE HONEY.

We took 5 barrels of extracted honey, which we have sold very readily, and could have sold more if we had had it. We shipped to Chicago, 2,500 lbs. net, mostly comb honey, in 1½ lb. section frames, besides supplying 15 towns within about 20 miles of us. We go about once in 6 weeks, and take a new supply, see that it is kept in proper shape, bring home the shipping boxes, &c. We generally canvass some between the towns. In that way we sell our extracted and rough honey to farmers.

We want to thank you for the good advice contained in "Our Homes." We generally make that almost the first piece read in GLEANINGS.

You may put this in the Ladies' Department, or in the Smiley (if it is worth printing), whichever you please; and tell the ladies, those who are not too much burdened with family cares, and especially the invalids, that they are losing very much, by allowing their husbands and brothers to do all the work in the apiary.

Never mind the stings; they will soon cease swelling. Your faces and hands may be somewhat browned, but it will be a healthier tint than the sallow of ill health. MRS. L. C. AXTELL.

Roseville, Warren Co., Ill., Dec. 23, 1878.

After reading the above, I could not help thinking of the first letter I received from you, my friend. As it may interest our readers to know how the 300 colonies started, I will give a portion of the letter, taken from our Feb. No., of 1874.

Please bear with me if I relate a little of our bee experience which has been a good deal disheartening. Many have been the times this summer that both husband and I have wished we had let bees alone, but there is no backing out now, without quite a loss which we could ill afford. Two years ago this winter we brought home one swarm of bees; the next summer they swarmed twice and gave us about three dollars surplus; one of the swarms filled the hive of 2,000 cubic inches, box hive, clear to the bottom, so we thought we would do as some of our neighbors did, pry off the top and take out some of the honey. We inquired of half a dozen or more of our neighbor bee-keepers if it would do any harm; they could not see that it would, so one hot day in Aug. or Sept. we went to work; but such a muss as we got into! bees, honey and all squashed down together! It set us thinking if there was not a better way; so last winter or fall we borrowed some bee books, bought some, and sent for some papers, and during the last year we have learned something. We had 15 stocks in the spring and in-

creased to 27, but have had to feed and nurse them all summer.

Had you and your husband become faint hearted and given it up, see what you would have lost. I know you have worked hard, and been faithful servants, and now you are beginning to have your reward.

I cannot quite agree with you, Mrs. A., in regard to sugar feeding. If sugar was very much cheaper than honey, I should use it, no matter what people said, providing I could be sure that none of it could possibly get into the honey offered for sale. After considerable experience in feeding to promote brood rearing, I do not think there is any danger, at all, of its getting into the surplus boxes. Those who talk to the contrary have not tested the matter, by practice. Invite those who talk of frauds to come and see you and get acquainted. When I have a guilty conscience, I fear to have people talk, but at no other time.

Your division boards made of lath are effectual, but I should prefer some thin light strips, because they take so much less room in a hive.

I am a firm believer in open air, and awakened enthusiasm, in place of doctors and medicine, and I hope your advice and example may stir up a spirit among your sisters, to arise and do likewise.

If grass can be kept mown close, it will do very well; but I object to it for the very reason you have mentioned, that things are apt to get lost. It is quite difficult mowing among the hives, and in wet weather it is rather unpleasant. It takes hard work to keep an apiary clean and tidy, either way. My neighbor, Shaw, keeps sheep in the enclosure to keep the grass down.

Mrs. A., cannot we men have such an apron, too? we like to be clean, and we have had ample experience of the effects of honey on our good clothes, when we happen to have any. We also get things lost now and then. Your plan of selling honey is the idea, exactly; but alas! that takes energy and go "aheadativeness," too, and that is the great lack, the world over. It may be, that hard times will drive us to it, and I know your cheering letter will help us on the way.

FOOT POWER SAWS, ETC.

HERE is a—well, I will call it a drawing of my foot power. It being rather different from any I have seen, I thought I would send it you.

The arm from the crank runs back, as you will see, 30 in. The length of foot power is 3 ft. and 6 in. I get more power than I should to go right down from the crank, which is 2½ in. My foot rises 9 in. The balance wheel is iron, 24 in. in diameter, 3 in. face, and weighs 65 lbs. When new it cost \$1.30. The mandrel is ½ in. in diameter and 17 in. long. I had it made for me, washers, nut, and all complete, for 50 cts. The stand is spruce; the saw frame, hard pine; the saw table, ash; the gauge that runs parallel with the saw is ash, 2x3; the saw table is 4x24; the mitreing table, black walnut, 2 in. thick, 30 in. long, made according to your directions in the A B C; the track on which the sliding table runs is ash, the shape of a 3 cornered file. It is all made and put together in good shape, with iron rods in the legs to make them stout.

The pulley on the mandrel is wood, 2 in. in diameter. The saw does not run very fast, but I shall have to make it do for the present. I have made about 40 Simplicity bee hives with it; I made 17, in good shape, in as many hours. I have one which you made, and mine is as good as yours, I think.

My machine cost \$8.00 and 3 day's work for 2 of us.

Mr. Root, I almost forgot to tell you the kind of saw I used for cutting the mitre to my hives; I tried my cut off, but that did not cut fast enough or easily enough, so I used what I call a mongrel saw, neither a rip nor cut off saw, but just half way between them, and that went nicely and easily.

Now, Mr. Root, don't think I am too much of a brag for telling you what I have done and can do, for I am quite sure of it.

I have taken more honey out of that hive which I got of you, than anyone around here has taken from all they have got; some have 9 swarms, and did not get 20 lbs. I got from that hive 54 lbs. and 10 oz. of comb honey, and it was not a good season here for honey, last year.

D. S. BASSETT.

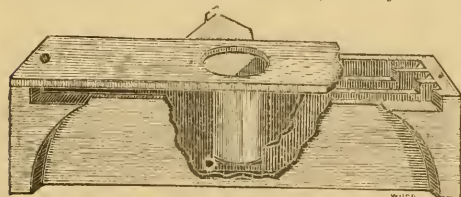
Farnumsville, Mass., Jan. 27, 1879.

I am not quite sure that any advantage is gained from the way in which you make your treadle. We use a saw a great deal in our work, that is half rip and half cross cut. It has a decided advantage for cutting mitres, or for cutting across the grain of the wood diagonally. We keep in stock saws of this kind, 8 in. in diameter, that we can furnish at the usual prices.

Do you mean, my friend, that you got a new mandrel made for 50 cts.? I would like to hire the man who can do it, all the time; also one who could make a new 65 lb. balance wheel, for \$1.50.

NEW INVENTIONS OF THE MONTH.

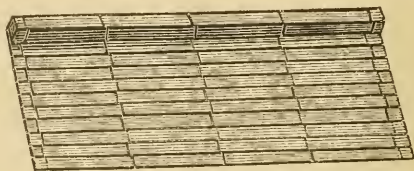
SINCE my invention of the Simplicity feeder in 1877, there have been a great many additions and improvements; but, as it was made almost expressly for the purpose of feeding at the entrance in the night time, I did not then, nor can I say I do now, think any addition necessary. Feeding in the day time, especially, when any honey is to be had in the fields, is a very bad plan, as I have many times demonstrated. I have kept a colony at home fussing with a lb. of honey in feeders while one by its side would get 3 lbs. in the fields. For the benefit of those who must feed in the day time, Mr. Gray, our foreman, has invented the following addition to the Simplicity feeder. Our friends who have buzz saws will find it a nice little exercise for their ingenuity.



SIMPLICITY FEEDER, ARRANGED TO BE USED AT THE ENTRANCE OF THE HIVE, IN THE DAY TIME.

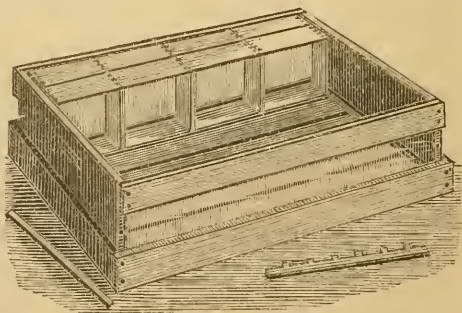
Get a piece of basswood $2\frac{1}{2}$ by $2\frac{1}{2}$ by 1 foot long; pine will do, but is more apt to split. Bore a hole in the centre, almost through, and then bore for the screws to hold the cover on. Next drop the block over a very thin saw, to cut a place for the tin slide which is to close the auger hole. Then rip off the cover just below this slot, and finish with the grooving saw, which should cut about $\frac{3}{4}$; this saw may be a wabblersaw with a very wide set, or a group of 3 thick saws. You will observe there is a cut made under the cover, precisely like the one on the side fa-

cing you. After these are done, you have only to cut the little troughs, 3 in. number, and you are to cut them just $\frac{1}{4}$ inch deeper than the bottom of the auger hole. Roll up a piece of tin, and push it to the bottom of this auger hole, letting the tube come just up to the tin slide. This tin tube is to carry the feed down under the bees, that it may well up under their feet when the feeder is filled, and so need not daub them or soil their wings. The feeder is to be used tight up against the front end board of the hive, partially closing the entrance. I used the Simplicity feeder in the same way when it was first made, by laying a board over the top except one end, when I wished to feed in the day time. The price is 12c.; if sent by mail, 20c.



MAT FOR COVERING THE FRAMES.

I am sorry to say, that even the enameled cloth is, in time, eaten through by the bees, and it seems that nothing is going to hold them permanently but wooden boards. The boards, however, need not be very thick, or very wide. Mr. Gray has come to our aid again, and given us the device shown above. The great beauty of it is that while it cannot shrink so as to let the bees out at the ends or sides, it can be rolled back, folded smaller, and adapted to the varying sizes of the hive with a division board, even better than any cloth, and in placing it over the bees, we can see through the cracks, so that not a bee is killed. The strips are of basswood, and are 1-16 by $\frac{1}{2}$ inch. They are woven in a loom, with hard hemp twine. I consider this a great acquisition. Price, 10c.; by mail, 15c.



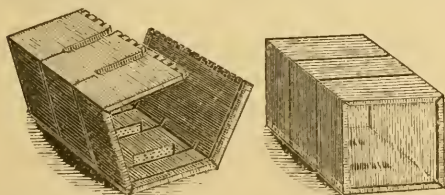
COMBINED SHIPPING CASE AND HONEY CRATE.

I have for years thought of a shipping case that could be set right on the hive to be filled, and taken right off the hive and sent to market; but difficulties have always stood in the way, until now. The above has bottom bars to protect and hold the sections, precisely like those on the broad frames, and they are supported by a groove cut along the lower edge of the end boards. Now to space

these bottom bars as they lay in the grooves, exactly, so as to match the bottom bars of the sections. we use a spacing strip shown in the engraving, below the case. This strip, when pushed down in place, also holds the separators at just the right height. The sections are closed tops, and when they are all in place, a thin strip is pushed down so as to rest on the top edges of the separators, and hold the boxes firmly upright, and in place. A strip of glass runs along each side, which allows the apiarist to see how fast the bees are working, by simply raising one side of the cover to the story and a half hive. This case finished complete, glass and all, we can furnish for 20c.; in the flat, for 15c. The case filled with sections (28), starters, and separators, only 50c.; without the separators, 40c. If you send the whole case to market, you can get along very well without separators, for every comb can be sent just as the bees build it. If the central sections are capped first, separate them in the middle, and swing them around, so that the finished ones will come next the glass. Just one more invention, and then I will keep still for a whole month. for to-day is the 27th of Feb.

HONEY BOX FOR FARMERS.

Some of the farmers around here, and I suppose around you, must have a honey box. Well, we will make one as described last month, and we will have it just the size of 3 sections. Eight such boxes will fill the case above, if we put 4 sections through the middle. From bolts of thick basswood properly cut and grooved, we will slice off pieces like that shown below.



Before folding them up, we will groove them, with a thin saw, to hold fdn., and also cut some similar grooves their whole length and nearly through, so that, with a pen knife, the grocer can readily separate every box into three distinct sections. The finished box is shown at the right. It can have a groove for a glass or not, as you choose. The price of a crate filled with these boxes will be the same as with sections. Price of 3 lb. box with glass and fdn., all set up complete, 4c. Price of boxes in the flat, 2c. each. I hope you can make them still cheaper, and that these inventions may all contribute to your happiness. Good day.

P. S.—While I have hold of the “door knob” one thing more occurs to me.

I told you the story and a half hive was sold in the flat, at the same price as the Simplificties. As it has a permanent bottom board, it will figure in the list at $\frac{1}{2}$ more; thus: three will cost 75c. each; five 72c. each, and so on. You can furnish it with such inside work as you choose. The hive complete, nicely painted, all wood frames below, and our new case of sections above, no separators, we are prepared to send out for an even \$1.50. This is cheap and simple, and for beginners I do not know of anything better. The price is so low, I do not know

how I could do any better, if you took 20 instead of one.

SOMETHING ABOUT GRAPE SUGAR, ETC.

GRAPE SUGAR.

YOU may recollect that I sent you some hard, white, grape sugar in slabs, and that I afterwards wrote to you, that the bees which I fed with that sugar took the dysentery. The next spring ('78), I went to the mills, and saw the chemical superintendent of the works, and had a talk with him. He explained to me the reason why that sugar was injurious to bees or, in fact, to any animal (man included). He stated that that white slab sugar was manufactured expressly for the use of confectioners, and was bleached with sulphurous (not sulphuric) acid, in order that it might look white, in candies, &c. (Nice for candy eaters?) He said that, if he had been there when I bought it, he would not have allowed me to take it.

He gave me 300 lbs. of wine growers' sugar, as he called it, used by brewers, wine growers, and vinegar makers—a yellowish gray sugar somewhat soft and damp, with a much pleasanter taste than the white. I used it for feeding in May last, during the wet, cold weather which we had about apple blossom time. I consider that it almost saved my bees; they were pretty full of brood at the time, and without stores, and the result was that, when June 10th came, they were “chock” full of young bees. I endorse grape sugar for spring feeding.

CHEAP FDN. MACHINES.

I send you a sample of fdn. made on my machine. It is one of Bourgmeyer's, and I think you will admit that it is good. It has a 9 in. roll, and the price was only \$30. Now, Mr. Root, add to our many obligations by seeing if you can't figure out a reduction in the price of yours. Honey is cheap, and I could not have afforded to buy one at \$50.

I don't see the need of wire in fdn., especially, since we have it made with the base of the division walls. I had hardly any cases of sagging last summer. 1, of course, put in the frames of fdn. between frames of comb.

JOHN DICKINSON.

Milwaukee, Wis., Feb. 2, 1879.

I am glad, from the bottom of my heart, if friend Bourgmeyer has succeeded in making a good machine, at the price mentioned, even if it does cut off a large trade for Mr. Washburn and myself. Much disappointment and some hard feelings were caused by the first, imperfect machines which he sent out, but the sample of fdn. which you send, I am sure, would do very well.

THE \$25 HIVE, “VISITING” QUEENS, ETC.

AS something very simple is what we all want in the bee business, and as no one has sent you that frame yet, I think I will have to send you mine. As I have no stails that I can get around, I have used the result of your walk; so here it is.

Just take one of your all wood Simplicity frames, cut off the projections at each end, take a piece of hoop iron as wide as the end pieces, make a bend at one end, cut it off about half as long as the end piece of the frame, punch 2 holes through, one at the lower end, and one near the middle, take 2 tacks that will clinch, nail the hoop iron on each end of the frame, so that the hook will be just even with the top of the frame, and, lo! you have it.

FERTILE QUEENS GOING “VISITING.”

The queen I wrote you about finding away from home, some time ago, is a strange acting lady; in fact, she will take a fly whenever she has a mind to. Twice, since I wrote you, I have seen her out. She will fly off and be gone one or two minutes, when she will return, and walk into the hive as though she had a perfect right to go and come when she pleased. I caught her both times, opened the hive, and found it full of brood, from hatching bees down to eggs. She is a nice yellow queen, purely fertilized, and her brood are all yellow, 3 banded, good natured fellows.

I like “Our Homes” in GLEANINGS; they help me

very much. I cross the St. Joseph river in a little canoe, every Sabbath, walk 2 miles, superintend a Sabbath school, walk back, and cross home again, very tired. May the Good Master bless you in the good work, and when you are called to cross the deep, dark river, may his angles bear you company.

WM. L. KING.

St. Joseph, Mich., May 14, 1878.

Thanks, my friend. Your hoop iron spring hook, on the end of the frame, is not exactly new. The objection to it is, liability to kill bees, and to be clogged with propolis. Your fertile queen's going out doors is certainly something new. It seems that, after all, fertile queens do, at least *sometimes*, leave the hive. Who can tell us more about this?

AUSTRALIA.

WATER FOR BEES DURING SHIPMENT.

I MUST now tell you of another failure: 10 small boxes, each containing an Italian queen, were sent from the apary of Florini, of Venice; they arrived here on the 14th of May, all *dead*. There is another consignment due here to-day, but it has not yet arrived. I am doubtful about their safety. With regard to water, I have sent upwards of a thousand colonies away during the last 7 years, and never lost a single stock. Water is no new thing with me; I have used it for more than 7 years, and have never sent a colony away without it. Some of my bees have made a journey of 3 mos. and 20 days, traveling on bullock drays, and in the broiling sun, (How is that for high, Novice?) and arrived safe and sound, at the station.

More than 2 years ago, I mentioned water to you, when describing the hive I would like to have sent from America. These are something like the words I used: "Send me plenty of bees, plenty of stores, and plenty of water."

Now, if this next lot of Italians don't arrive safe, you had better try your hand. You will not lose much by the affair (depend upon it), if it proves a success. So now, Novice, I must wind up, by telling you that my stock only numbers 11 colonies, and that I am going back to the good old Langstroth frame (there is none other), and I will hang it in the chaff Simplicity. By the way, I hope you will do all you can for the safety of my goods; the lawn bee hive will be quite a novelty here.

S. CARROLL.

Milton, Brisbane, Queensland, Aus., Nov. 7, 1878.

I certainly will try my hand, friend Carroll, if you fail in your next shipment, and if the bees die on the way, they will cost you nothing. It seems hard enough to pay these expensive shipping charges when your bees come through alive, and to have the whole shipment dead, is awful.

I think of you often, friend Carroll, in your far away home, and if you do have trials and disappointments, we sympathize with you, even if we do not do much to help you.

Notes and Queries.

I HAVE lost one swarm of bees this winter. They died with plenty of honey in the hive. What was the matter? W. W. TEMPLETON.

Huntville, O., Jan. 30, 1879.

[I can't tell, from so brief a statement of the facts, but if I could see the hive, I think I could decide. It may have been too few bees, with too little protection; their stores may have been of such a nature that it caused dysentery; there may have been so little upward ventilation, with exposure to the frost, that the moisture condensing about the cluster diluted their honey and caused dysentery, or they may have had a disease that caused them to die, when all the conditions were, so far as we could see, all right. Whether there be such a disease as I have last mentioned or no, is quite an unsettled

point, but sometimes, it looks much as if such was the case.]

Oh! oh! oh! don't stop your paper! Keep my name on your books, as I will send you money soon. I can't get along without your paper, and as long as I can get 10 cts. per day, I will try and pay you for it.

W. W. ROWLEY.

Eau Galle, Wis., Jan. 17th, 1879.

[Can't break over our rules, my friend, even if it is a killing matter, but I will tell you what I will do; I will send you the Jan. No. free, and before Feb., you can certainly scrape up 25c. It does me much good, to know you really want it.]

Oh! Oh! Oh! I was too happily disappointed to receive GLEANINGS! I did not expect you would be so foolish as to trust these bee men. Now, I have just got the \$1.00, so I will send it to you with this; but a little advice won't come amiss will it? Don't do so again; as you may lose it next time.

Feb. 2, 1879.

W. W. ROWLEY.

As you have used fdn. freely the past season for box honey, I would like to ask the following questions:—Do you think by using it, that as much honey can be obtained as with the ext'r., when we extract only from combs entirely capped over? [I should say that, even with the aid of fdn., we could get nearly twice the amount of honey with the extractor.]

Considering the cost of fdn. in boxes, how much more should we charge for comb honey than for extracted honey, in order to get back the outlay for fdn.? [When extracted honey is 10c., comb honey, in nice sections, should bring about 20c.]

The work of fastening in fdn., compared to the labor of extracting, is another item to be thought of. How many sections, with fdn., can one hand put up in the wide frames, all ready to hang in the hive, in one day? [If I had the stuff for the sections, and fdn., I think I could put them up, and furnish about 20 hives in a day.]

In removing sections, do you wait until all are ready, or do you remove a few as soon as capped over? [Take off every section as soon as finished, of course; this is the one great advantage of sections, that the honey can be kept pure and white, and the bees at no time stopped, by taking too much honey at one time.]

If you remove as fast as capped, would it not be better to wedge the frames in the center, turning half of them in the opposite direction? You could then get at the center frames, without disturbing the others; I suppose they would be filled first. [I do not think wedging up in the center would offer any material advantage. After the wedges are removed, any frame of sections can be taken out easily.]

If you wait until all are ready to remove, would not the bees lose time, and, not having work to do, swarm? [Yes.] J. B. COLTON.

Waverly, Iowa, Jan. 22, 1879.

Yesterday, I reviewed the stock that had your imported queen. I found sealed brood on two frames, and eggs on another! They have wintered admirably in the chaff hive.

L. L. LANGSTROTH.

Oxford, O., Jan. 29, 1879.

We have 62 colonies in the cellar, and one on the summer stand, in a chaff packed hive. I don't think 20 bees have died in the latter, during this long continued cold weather. Yours for chaff packed hives, Columbus, Ind., Jan. 20, 1879. J. M. BROOKS.

Times are dull, and money scarce; honey worth 8 and 10c. here.

DAVID BARE.

Hubborton, Wis., Jan. 7, 1879.

I lend my GLEANINGS to my neighbors to read, and think I will get several more subscribers in a few days, if the money panic does not visit their pocketbooks too much. The last time I saw my A B C, it looked as if chimney sweeps had turned bee-keepers. I could not keep it at all, and the last time I heard from it, it had gone toward the Unaka Mts., in North Carolina.

A great many persons are becoming interested in bees in this country. The last honey season was only a moderate one. The peach crop was abundant, and they put in their time, eating peaches.

M. A. HUFFAKER.

Riverdale, Tenn., Dec. 31, 1878.

I am going to move to another part of the town in which I now live. My bees are in the cellar. What will be my best course in moving them? I know taking them off several miles and then returning is the best way, but it is expensive. [Bees wintered in the cellar can be placed anywhere when taken out. Take them out in the spring, and place where you will.]

I can buy 5 swarms of common bees, in box hives (guaranteed to winter), at \$3.00 each. Shall I buy them? I want bees. [Yes, even at \$4.00.]

Does it make any difference which side or end of the sheet of fdn. is fastened to the top bar or comb guide? I have some I got of you, but had no opportunity to try it thoroughly. I will get more in the spring. [It may, a little, but is not decided fully.]

In the absence of grapevines, shrubbery, &c., for shade for hives, can you suggest any way by which I can properly shade them, with boards, during the summer? I want them to do their very best, and am willing to aid them in every way. [Any kind of shade with boards will do.]

Will it be injurious or likely to cause dysentery, if I examine my bees in the cellar, to see if they have plenty of stores, and, in case they haven't, to give them a frame of candy? [I think it will do no harm.]

I have a friend who had one swarm of black bees, and when they swarmed last summer, he says they were nearly all Italians. Could his queen have met an Italian drone 4 miles away? [Stocks of black bees, 4 miles away from Italians, often become hybrids.]

What will the cost of 17 honey racks for the Quinby hive be? Hive, pages 68 and 69, *Mysteries of Bee-Keeping*. [Such as Mr. Quinby used should cost you about \$1.50 per hundred.]

How do you use the transferring clasps you advertise? [Cut your comb or combs to fit, and slip the clasps over the top, bottoms, and sides, of the frames, until the bees fasten the comb.]

Could not rollers for fdn. be made of vulcanized gutta percha, and do the work as well as those now used, and be made cheaper? [I do not know how anything besides metal could be brought into shape with sufficient accuracy, and I doubt gutta percha's being hard enough.] ED. D. HECKERMAN.

Bedford, Pa., Jan. 7, 1879.

How far from the trellis for the grapevine do you set your hive? [Perhaps 3 inches.]

Is it intended that the bees should enter and go out under the lower bar of the trellis? [With a hive that has the entrance on the side, but not with the L. and Simplicity hives that have the entrances in the end.]

Is not 3x4 ft. too small a space for a strong growing vine, like the Concord, to be restricted to? [We have no trouble in restricting the Concord to the trellis mentioned.]

Why do you train 2 shoots to each post and wire, making 10 shoots, when you cut them all down in the fall to the horizontal arms? My practice has been to cut down half, and leave the other half for fruit and shade. Those cut down to one eye give new shoots for the next season, for bearing, and then the bearing ones for the past season are cut out, and new ones trained up for the next season.

[My plan of training grapevines was taken from *Fuller on the Grape*, and I much prefer it to the plan you have named.]

Does 3 ft. in height, from cross bar to top, give shade enough? Would not 5 or even 6 ft. be better for height?

[The arrangement shades the hive beautifully, is not at all in the way, and allows the sun to strike the hives both in the morning and evening, in the early part of the season. I would not have the trellis more than 3 feet high, because it would be harder work to reach the growing shoots, to keep them in bounds. The foliage reaches a full foot above the top bar.]

Simplicity or Langstroth hives are 18½ in. in the clear, lengthwise, and ¾ in. off, for the passage of bees on each end of the frame, would make the outside measure of the frame 17½ in., instead of 17¼; also ¾ in. at each end for rabbits, added to 18½ in. inside measure of hive, would make the top bar of frames 19½ in. in length instead of 19¼; or do you calculate on ¾ for play room? Please explain.

[You have got it right; we always allow ¾ play room, to be sure there is no sticking in handling the frames.] A. FARNESTOCK.

Toledo, O., Jan. 13, 1879.

I tell you, friend Novice, that fdn. machine of yours is a great invention. I place it next to the movable combs, and a long way ahead of the extractor. The way my bees *claw* it out, in the brood nest, is a marvel. I also prize it highly in the sections, when there is not too much put in. Some bees take to it like bees to water; others use it slowly, and don't thin it out as much as I like, but I will remedy that by and by, by breeding only from such as use it to the best advantage. J. F. FLORY.

Modesto, Cal., May, 31, 1878.

SWEET WATER RUNNING OUT OF THE HIVES IN COLD WEATHER.

What causes the honey to run out of the hives, during cold weather? I have several new colonies from which the honey runs. Would you please let me know how to prevent it. C. G. McCLURG.

Elizabethtown, Pa., Jan. 7, 1879.

[Plenty of upward ventilation will stop it, but a covering of chaff will be much better for the bees. It is caused by the moisture from their breath condensing, and sometimes forming ice, on the combs of unsealed honey. When the temperature lowers, this ice, or frost, melts and dilutes the honey, so that it runs out. If you will taste it, you will find it is sweetened water, rather than honey. It indicates a bad state of affairs; for, if the colony is weak, they often get dysentery from this thin, watery food.]

HOW TO KEEP BLACK DRONES OUT OF THE WAY.

I have 4 colonies of common hybrids and one colony of pure Italians standing in a line, 6 feet apart. I want to Italianize in the spring, and increase my stock as largely as possible. How will I keep the black drones from fertilizing my early queens?

[You can get rid of all objectionable drones in your hives, by removing all drone comb, by keeping the stocks weak by dividing, or by slicing their heads off as soon as they are sealed over in the combs. If black bees are kept within 2 or 3 miles around you, I do not know how you can help yourself. If all your queens are reared from your pure stock, the black drones will do but little harm so far as your honey crop is concerned, and, if you keep on, the Italians will soon preponderate so far that the native bees will stand a poor chance. The bees in the woods all about you will soon become Italians, if you persevere in this way.]

FDN. PART WAY DOWN.

Don't you think that in using the fdn. in the brood chamber of the L. hive, it would be better to have it—say 5 in. deep, and the usual length from end to end of the frame, thus obviating the danger of sagging and breaking down?

[They would often build out with drone comb.]

Wilmington, N. C., Dec., 22, '78. R. C. TAYLOR.

Tell our friends who have home made foot-powers to make the bearings of brass, and there will be less friction than with any other metal. Bees have wintered well, and were carrying in pollen on the 28th of Jan. A. T. McILWAIN.

Abbeville C. H., S. C., Feb. 3, 1879.

I have been writing to you with reference to buying some hives, etc., this spring, but from present appearances, I shall not need them. It is a warm day, and the bees have flown out, but fail to return to the hive. They are not out 3 seconds before they turn over on their backs, flutter a little, and then die. They do not smell bad, and the hive is not dirty, so I think it is not dysentery. Please give a remedy.

Can I give them a fly in the house and examine the hive? If I can, please give directions. Jamestown, N. Y., Feb. 6, '79. C. E. JONES.

I can not tell, from the symptoms given, what is the matter with your bees. You might try giving them a fly in the house, but I doubt whether it would do them any good. For directions, see Jan. and Feb. Nos. of GLEANINGS, for '79, or A B C, Part Second.]

How can I post myself in Apiculture?

[Get a swarm of bees, then read the books and journals, and make practice and study go hand in hand. You want the books to guide you, but they are worth little, without the practice to go with it.]

Will it pay to devote one's self to it as a business?

[I think so.]

Are its risks of management fully understood?

[The risks are pretty well understood, but there

will always be more to learn.]

Which is the best locality?

[Perhaps California is the best locality known, at present, for honey, but many other conditions are to be considered; it may be difficult to decide.]

I am buying the best white clover honey, for 15c. per lb. It seems to me there can be but little profit in that, to the original shipper.

New York, Jan. 14, 1879.

JAS. E. BOYD.

GRAPE SUGAR FOR WINTERING.

ANOTHER BAD REPORT, SEEMINGLY, FROM GRAPE SUGAR.

I have seen it stated in the bee journals, and also heard from practical bee men, that grape sugar is an excellent and cheap food for bees. Taking it for granted that these men knew all about it, I sent to Davenport for 110 lbs., which cost me \$6.20.

The next thing was to prepare it for the bees, which I did by putting some of it into frames, and cutting some into thin slabs. I put the frames into the hives among the bees, and the slabs on top of the frames. When I came to look at the bees, expecting to see great holes eaten through the sugar, what was my surprise when I found the bees dead, and the sugar not touched!

In one chaff hive containing a large swarm, I had put 3 cards of honey, then 1 of sugar, then 5 of honey, then 1 of sugar, and then 4 of honey. I found the bees dead between the sugar cards, and no honey with them, but plenty of honey on each side. I suppose, during the cold weather, they could not pass the cold sugar to get honey, and as they would not eat the sugar, they died. In another hive, where the swarm was divided by a card of sugar, the bees on one side ate out their honey and died, while the other side had honey and lived.

I then melted some grape sugar with first class maple sirup, and put that in the frames, but they would not touch it. Next I took some pure white sugar and put about an ounce of grape sugar to a pound of white sugar. They ate a very little of this, but I am satisfied they would starve on it. Now I will enclose a small piece of the stuff for you to examine, and see whether it is sugar or tallow.

I started in the winter with 23 swarms and now have 16. WM. BEBOUT, Savannah, O., Feb. 10, '79.

AND ONE THAT IS NOT BAD, SEEMINGLY.

Also a Solution of the Great Problem of Combining Flour with Grape Sugar.

In order that my experiment may be clearly understood, I ought to say that I use a frame 12½ in. deep and 10¼ wide inside measure, with closed top bar, the latter being 1½ in. wide. My hives hold 10 of these frames. Last Nov., I determined to try grape sugar in 4 hives to see the effect on wintering. I prepared it for the hives by taking a frame and making the sides and bottom the same width as the top, 1½ inches. This gave me a box, 1½ inches deep, the size of a frame, but without a bottom. After warming the sugar in the oven until it was in a semi-liquid form, I laid my frame upon a table and poured the grape sugar into it. I generally mixed a little flour with it. In the course of a few hours, the sugar would be hardened in the frames, and they were ready to put in the hives. I intended to put one frame in the middle of a full hive but accidentally left out 2 frames at the side, and this hive was put in the cellar until the latter part of Jan., when it was brought out where it has remained since that time. Since standing out in this very open condition, the mercury has fallen to 5° below zero. I found the cluster right on one side of the comb of grape sugar, which was about half used up, and the two combs right along side of it about ¾ filled with brood which was hatching out. Everything about the hive indicated perfect health. There were very few dead bees. The grape sugar was softened by the heat of the cluster and the bees were feeding on it.

In another hive, I put a frame of grape sugar in the center of 4 combs of honey, a division board on each side of these combs, and then filled the remaining space on each side, about 2½ inches, with chaff. This hive has stood out all winter, the temperature falling to from 18° to 25° below zero, according to different thermometers. On examination to-day, I find the condition of this hive almost exactly the same as the other, except that the 2 frames on one side of the grape sugar were more than half full of capped brood, the frame next to

the division board having brood on both sides. I did not have time to look at the other two hives. I think the bees do not use much of the flour; it seems to be on the bottom of the hive.

Decatur, Ill., Feb. 22, 1879.

E. A. GASTMAN.

PROTECTION AGAINST EXTREMES OF HEAT AND COLD, SUDDEN AND SEVERE CHANGES OF TEMPERATURE, AND DAMPNESS IN THE HIVES.

IN the 1st edition of my work on *The Hive and Honey Bee*, published in May 1853, there is quite a long chapter with the above title. The following extracts will give a tolerably fair idea of its contents:

[As Mr. L's article only reached us the 22d inst., and our journal was all made up, we were obliged to omit the quotations for want of space, but will give you them next month.—Ed.]

I hope to give in another article my reasons for saying so little upon this all important subject in the 3d and last edition of my book, published in May, 1859, and will close with some facts recently observed by me.

Having regained my health last fall sufficiently to revive my interest in bee-keeping, I sent to Mr. Root for some of his chaff hives, and an imported queen. A fair stock of bees was placed in one of those hives, early in Dec., their queen removed, and the imported queen safely introduced. It was too cold for the bees to fly, and yet I found, shortly after her introduction, that she had begun to lay. In Jan., the mercury sank to 21° below zero—the average of the four coldest days being 11° below zero—the coldest consecutive four days ever recorded in Southern Ohio.

In the latter part of this month, the weather having moderated enough for the bees to enjoy a cleansing flight, I found a little sealed brood on two frames, and eggs in a third. I gave the stock a frame of flour candy of Mr. Root's make, and although not at all lacking in honey or bee bread, the bees began to work vigorously upon the candy. It was put on the outside, and yet the largest spread of brood was soon found to be on the comb next to it; and frequent examinations have shown that the side of the candy next to the brood was always covered with bees busily at work upon it.

Judging from this experiment, I am strongly inclined to believe that, if this kind of candy is given to the bees in a thoroughly protected hive, after they have had a good cleansing flight, it will be a constant stimulus to breeding, and enable the apiarian to save the time and losses of the usual mode of stimulative feeding. If so, we may safely say that, by the use of flour candy, bee-keeping has made another important advance, since, in this latitude, it is indispensable to have the stocks strong early in the season.

Two weeks ago the mercury sunk on two successive mornings to zero and 2° below zero. Before this, many bees had hatched, and the queen had laid quite a wide spread of eggs. To-day (Feb. 20th), I estimate that some two thousand bees have hatched, and at least as many more are sealed over. The number of larvae a few days old is small, but the number of newly laid eggs quite large. This shows that during the last very cold weather, the bees removed most of the eggs from the cells. This has given a little check to the progress of the colony, but the loss of eggs, or even very young larvae, at this season, is of little consequence. The large spread of eggs found to-day shows that the bees are not at all discouraged.

As bees, when merely disturbed by the handling of their combs, often, in the fall, resume breeding after they had entirely ceased, I cannot yet decide how much of this winter breeding is owing to the giving of flour candy to a fair stock, in an admirably protected hive, and how much may possibly be owing to such frequent disturbances as my experiments compelled me to make. I do not think that I have lost, in all, a hundred bees upon the snow, as I have used the smoker freely. I shall endeavor to keep your readers advised of the results of this experiment.

L. L. LANGSTROTH.

Oxford, O., Feb. 18, 1879.

*Not only was the hive lined with chaff, and a thick chaff cushion used, with a chaff divider to contract the hive, but by the sawdust arrangement, the bottom of the hive was admirably protected.

STARTERS, GRAPE SUGAR, CHEAP HONEY FOR FEEDING, ETC.

THIS cold snap will try "every man's work, what sort it is," in regard to preparing bees for winter: 22° below zero yesterday morning, and 16 this morning! and this so soon after the cold spell of last month! It will thin out the bees all over the country.

The past honey season has been only fair with us, not quite so good as 1877. The hives extracted from averaged 200 lbs. against 220 lbs. in 1877, while in comb honey, the yield was better than in any previous year, which was due to the use of fdn. in section frames, you will probably say; but such is not the case, for I am opposed to the use of "raw" fdn. in boxes. The way I use it is this: I fasten it in L. frames, and hang them in the upper story until the fdn. is worked out and filled with honey; if capped, all the better; then I extract the honey and cut up the comb for starters. I have never seen the plan recommended by any one, in the journals. Try it, bee-keeper, and your customers will not complain of a hard center in your comb honey.

The honey market has been rather slow with us, this winter, still, by hard work, we have succeeded in marketing, up to Jan. 1st, 3,761 lbs. of the 7,000 lbs. taken last season, from 59 stands.

And now, friend Novice, I must say a few words about this glucose and grape sugar business; not that I intend to pitch into you in the way others have done, but merely to offer a few friendly criticisms. In the first place, we are satisfied—yes, sure—that you will, before long, quit the use of the stuff, quit advising others to feed it, and quit dealing in it. You profess to be working for the good of bee-keepers. Now, while a few may be benefited by the use of it, as a cheap feed on which to winter their bees, are not the many injured? Let it once be known that bee men all over the country are feeding anything but pure honey, and it will be harder than ever to convince those who would buy, that what you are trying to sell them is pure honey. Whatever you can get bees to take as food, they will also store in the surplus boxes or comb, when they need the room below for brood.

On page 365, in speaking of glucose, you say, "The fact that it is more expensive than grape sugar is the reason we do not use it." Then you would not hesitate in using and recommending it to others, if money could be saved by so doing!

There is another way of working for the interests of bee-keepers, and that is, buy of those who have it for sale, dark honey, such as will not bring much in our city markets, and sell to those who need it to feed. Poplar and dark fall honey can now be bought very low, and you could thus open a market for a large amount of it; thereby benefiting bee-keepers instead of the manufacturers of grape sugar.

On page 366, Nov. GLEANINGS, you say that as soon as those imported queens arrive, you will get them to laying, if possible, by feeding. Now as that is the natural season of rest, both for queens and bees, will it not injure them and probably shorten their lives, to thus feed them up? Experienced bee-keepers will agree that by feeding a colony early in winter, to such an extent as to induce brood raising, more old bees are lost than young ones raised; and if the workers are injured, why not the queen also?

With the best wishes for the success of all your enterprises which tend to the welfare of honey producers, dealers, and consumers, I am yours truly,
JONAS SCHOLL.

Lyons Station, Ind., Jan. 4, 1879.

Thanks, friend S., for your friendly criticism. If I get your idea, in regard to fdn., you think the base is thinned out more effectually in the brood combs than in the sections. From the observations I have made, I think the difference must be very slight. While the fdn. is thinned out in the great majority of instances in the section boxes, there are cases where it is left too thick to be desirable, and I have found just as thick bases in combs that were built in the brood frame, as in the section boxes. Your remarks in regard to grape sugar, like those of the great part of those who have objected to it, would seem to imply that you have never

used it. Is this fair? From its bitter taste, I do not think it could ever be used to adulterate honey without utterly ruining it for table use, aside from its inveterate propensity to solidify, even in slightly cool weather. If you will make some experiments with it, I think you will be satisfied that it is next to impossible for it to get into the surplus boxes. I beg pardon for so much repetition.

Again; I do not know, my friend, but that I shall accuse you of accepting too much theory, without verifying it by practice. I have fed colonies late in the fall for the last 5 years, and have never injured one by so doing. I fed a single colony a barrel of sugar, so late as to get drones reared and flying in Oct. and Nov., yet they wintered beautifully. Last season, I fed honey to 2 colonies to get them to fill out sections in Oct. and Nov., and although they reared brood clear into winter, they came out my very best in the spring. The colonies that I fed to get the imported queens to laying, are strong and thrifty, and I have no fear that they will be injured. Still further; by the use of the flour candy in frames, I had stocks in the chaff hives rearing brood almost, if not quite, every month last winter, and they came out running over with bees. Folks who write books often draw wrong conclusions, and it is your business and mine, and, I hope, the business of our A B C class, to sift these things most thoroughly, by practical work with the bees themselves.

Your idea in regard to using cheap honey is a most excellent one, and I have already put it into practice to some extent, but the cheap honey is making my bees, to-day, soil their hives sadly, while those fed on grape sugar are clean, dry, and healthy. Thanks for your kind wishes.

The "Growlery."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

I SENT 25 cts. to you, some three weeks ago, for the A B C of Bee Culture, Part 1st, and I have not received the book, or even an answer to my letter. I hope you will forward it by return mail, for I do not like that way of doing business. I will await your reply.
JOHN NICKLE.

Creemore, Ont., Can., Nov. 11, 1878.

I do not like that way of doing business either, my friend, and if I succeed in ciphering out any way of answering letters I do not get, I assure you I will do it with alacrity. Your letter was probably among the missing ones mentioned last month, and your A B C was sent the minute we found that you had sent an order. If you do not get an answer in 10 days after you send us an order, send a postal; but please do not accuse your friend of willful neglect, until you are sure they are to blame.

There is no use in my trying to "keep cool" (though the weather is such that it would appear an easy thing to do) any longer! I must growl, long and fiercely, or "bust!" My friend, please tell me what is the matter with our uncle "Samivel's" malls? Not

satisfied with suppressing bees, are they now endeavoring to suppress the bee books? Perhaps the officials fear the "wood cuts;" and how soon may it be ere they (the cuts) are *not* mailable, on account of a bee paper's becoming unwrapped, and some tender official reporting at headquarters, the fact that one or more of the wood cuts in GLEANINGS, were "loose" and rampant, in the mails? How long may it be, I say, ere these things come to transpire?

Query again: "Bee" these postoffice people doing their duty by us poor "beeings?" You mailed me 3 or 4 copies of the Jan. No. of GLEANINGS, and accidentally I got one of 'em.

On the 20th of Jan., you say you sent the A B C, parts 2d and 3d. Well, I haven't seen them yet, and am fearful I never will see them, at least till you send a doz. or so. Perhaps I might then get one, by accident!

Let me advise you, to put a printed label on the outside of the wrapper, in future, at least on my articles ordered through the mails. There are 15 people here who have the honor to bear your humble servant's surname, and it's my private belief that these people get many of my papers, &c., &c.

Now, my growl is over, I feel better, and if you consign this, with me, to the Growlery column, I shan't growl about that.

R. C. TAYLOR.

Wilmington, N. C., Feb. 8, 1879.

In the matter of queens by mail, we should try to bear in mind, my friend, that we are all of us interested parties, and can hardly be expected to take an unbiased view of the matter. Shall we not try to think that the P. M. G. is possibly all right, and that we are all wrong? The losses by mail about the first of the year, were quite serious, but it is pretty much over now. We have some neat little gummed labels, and one is put on every article of any value sent out. Below is a sample.

TO THE POSTMASTER.

Should this package miscarry, or remain uncalled for, will you kindly notify us of the fact, and we will send you postage necessary for its return to us.

A. I. ROOT,

Medina, Ohio.

Those of you who send off things by mail will find them a great convenience. We can furnish them for \$1.00 per thousand, with anybody's name and address on them. Thank you for your confession at the end of your "growl," friend T. I suspect that many of our troubles come about from the same cause; viz., from the fact that there are others of the same, or nearly the same name, at your P. O. When anything is lost, will not our friends take particular pains to enquire very carefully into the matter, at their P. O.

I would like to know what is the matter, that you don't send my goods. I ordered them on Jan. 27th, 1879, and have written to you since, but have received no answer. I need the goods sent at once, or wish you to return the money so that I can get them somewhere else.

G. K. PAGELY.

Meiser, Pa., Feb. 15, 1879.

Gently, my friend. You did not stop to consider that, possibly, the fault might be yours. Your order was received, with the money to pay for it, and we were very much troubled to find no trace of a name on the letter. We first looked to see if we had any subscriber at your post-office, and finding none, we wrote once to your P. M. to see if

he could inform us of the writer; there being nothing more we *could* do, we were obliged to lay the letter aside, and just wait until the complaint came, hoping to get the name with it. Now we can send your goods, without further delay.

DEPOSITORY OF

Blasted Hopes.

Or Letters from Those Who Have Made Bee Culture a Failure.

ON the 1st of March last, I had 12 colonies; but during March, April, and May, they dwindled down to 2. They were chaff packed, and all had plenty of honey. The 2 left were *very* weak; one has not swarmed, and none have made any surplus honey, but all are now strong, and have plenty of stores for winter. Why the dwindling?

J. A. COURTRIGHT.

Duck Lake, Mich., Dec. 23, 1878.

I do not know, my friend, what made them dwindle, if you had them all properly prepared as you say, unless it was because they had the "dwindling."

PEACHES FOR BEE FEED, AND WHAT CAME OF IT: ALSO MAPLE SUGAR FOR FEEDING BEES.

I fear I shall have to go into Blasted Hopes. Last spring my son and I started in the bee business, with 7 log and box hives. We bought lumber, made hives, transferred, bought bees, and increased to 28 colonies. It was a bad honey season, and late in the summer, bees fed largely on peaches. We thought they went into winter quarters with stores enough to take them through. We spent about \$15.00 besides our own labor, and everything went on swimmingly. About Dec. 1st, cold weather set in and continued until about the 18th inst., when it moderated and the bees flew out in great numbers. But, Oh! such a smell and such a sight! They dotted the snow around for several yards, perfectly thick. I suppose it was dysentery; they looked swelled perfectly tight, and scarcely able to fly until they unloaded themselves. Ten of the 28 colonies are dead, and the others greatly depopulated. It is now warm, and they have had 4 days of good flying. Some are rearing brood and all seem to have a good deal of energy. I hope they will not all die. I think they have stores plenty.

Had we better feed them? and if so, what? Will it do to feed them syrup made from the sugar maple? Italian colonies raised from queens sent by you, Hayhurst, and others, 5 in all, are all alive, and do not seem to have suffered as much as the blacks. Is it because they are harder? Was it dysentery they had?

H. H. Fox.

Tribulation, Mo., Jan. 22, 1879.

I believe, my friend, that peaches, cider mills, or fruit diet of any kind, generally affects the bees about as you describe. Some kinds of fall honey seem to have much the same effect. The warm weather will make things all right, and I trust no more will die, even though you do live in the town of Tribulation. Good maple sugar or syrup will answer excellently for bee feed, and when the price is low enough, I always use it. If placed in small lumps or cakes right over the cluster, under the chaff packings, the bees take it as well as the usual bee candy, or even better than that. For brood rearing, it would be much improved by the addition of about 1-5 flour; and now I think of it, I will, this minute, set about seeing if I cannot make such a mixture grain, so it may be poured into slabs like the candy. Hurrah for maple sugar and flour candy!

Bees have suffered terribly hereabouts this winter. I have lost 6 colonies, another man has lost 10, another 15, another 12, and several others have lost from 1 to 10. I suppose GLEANINGS will give reports from all sections. Has not this been the severest winter on bees for some time?

ROYAL J. FUNK.

Piqua, O., Feb. 17, 1879.

Strong stocks, with plenty of good stores, have done as well as usual with us; but some swarms, with stores of bad tasting, fall honey, from the West, have had the dysentery badly, and we have lost several colonies. Where this disease is prevalent, a cold winter like the present is not so favorable as a mild one.

How much beeswax do you want at 30c. per lb.?
and how long will you pay that price? About $\frac{1}{2}$ of the bees in this country, I think, are dead, and there will be a large quantity to be had.

CHAS. H. CARPENTER.

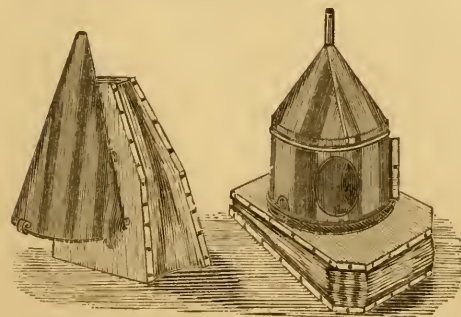
Dunlap, Tenn., Feb. 14, 1879.

We cannot say how long we will pay 30c., but consider ourselves under obligation to do so until notice is given in GLEANINGS to the contrary. We at present advertise to take *any quantity* of good, clear wax, at 30c., and we always intend to make good our word given in our advertisements. We are sorry to hear of the heavy losses.

THE COLD SMOKER AND THE WAY IN WHICH IT IS DEVELOPING.

GOD'S GIFTS TO HIS CHILDREN.

I TOLD you last month that the voice of God could be heard through the voice of the people. In this matter of smokers, it comes in a way that is almost startling, and seems clearly to indicate that these great inventions shall come through the united efforts of the masses; and that it is not His will that any one of us should hold a monopoly over the others. Orders came for the cold blast smokers, almost before—as it seemed—the Feb. No. could have reached you. A Simplicity smoker, on the cold blast plan, was ready to send out about as soon as the orders came, and it is so much ahead of any of our former Simplicities, that I can but regard friend Bingham's visit, as a special providence. I give you a cut of the smoker below.



CLARK'S COLD SMOKER. SIMPLICITY COLD SMOKER.

You will see that we have used friend Corey's damper as a place for supplying the fuel, by enlarging it and adding a wooden handle to open it by. By turning the ring, it is opened to put in fuel; by turning a lit-

tle farther, the small semicircular notch gives the proper draft; still farther, and the opening is closed so tight that the fire goes out. This is wonderfully simple, and works beautifully. With this smoker, it is an easy matter to deluge a hive with smoke, when standing as much as 6 ft. away from it.

Well, as there are many of our friends who prefer an upright smoker like Mr. Quinby's original one, I very soon thought of adapting the cold blast principle to these. Several correspondents sent letters similar to the one below.

Mr. Corey's smoker looks like the long sought for concern. I have always made it a point to hold the nozzle of the smoker as far away from the bees as was practicable, to avoid the hot smoke; but this could not be done in windy weather. If that smoker (Corey's) proves a success, we all owe him a vote of thanks. I will order one as soon as you get them in selling order, and if it is all I think it will be, I will lay aside my "Bingham," which has, until now, been the best smoker made. Can't you make the new smoker with an upright bellows? A flat one, I think, is very unhandy.

T. F. C. VAN ALLEN.

Adams' Station, N. Y., Feb. 5, 1879.

Accordingly we set to work, and found we could make a smoker as large as Bingham's largest, almost as easily as the Simplicity, and at about the same price, only that the blast tube must be turned at right angles to accomplish it. To do this, without solder, was no small problem. The tinners, myself, and Mr. Gray studied on it, in vain. I wanted all the operations done so cheaply, that it could be sold for the same price as the others. After we had all given up being able to make a 75c smoker, on account of this little difficulty, a box came, by express. Inside of it was the first smoker shown in the engraving, and the following letter:

I received my Jan. GLEANINGS promptly on time, and at once set myself down to read. Somehow I get to "Our Homes" very soon, and before one quarter of the book is read. When I read your talk with Bingham, and your decision about the smoker, I thought there might be some other plan of one that would answer as well; very soon a plan came to me, and I worked it out in its details.

Now I have your Feb. number of GLEANINGS, and lo! and behold! you have the same principle embodied in one from a friend in California; but I have decided to send you the one I have made, and perhaps there may be some features about it that you may like even better than Corey's.

It works beautifully; the draft of air across the top of the fuel causes it to burn clear and slowly, and leaves very little creosote. I find that rags burn, but perhaps $\frac{1}{2}$ as fast as where the air is forced up through the bottom. Its convenience as a "breech loader" is an item in its favor, also that it retains its position while in use. The Simplicity always seemed to me a little awkward, on account of being obliged to turn it bottom up so often, while in use.

Now, if you can use this to advantage, or modify it to suit you any better, you are welcome to it.

As a counterbalance to friend Sedgwick, I will say that the best part of GLEANINGS, to me, is "Our Homes." Four years ago I would have written as he does, but I see things differently now, and am happy in being able to place myself by your side, as a Christian. May God speed you in your good work, and bless "Our Homes." Your friend,

Sterling, Ill., Feb. 4, 1879.

NORMAN CLARK.

Our engraver has hardly done justice to friend Clark's beautiful implement. The cold blast is obtained by a small cone just inside of the large one, and near its mouth. The air goes directly into this through a

short tube. The bottom is hinged; but in those we are now making, the fuel receptacle extends lower down, and opens in the side just like the Simplicity. It stands up as solidly as an oil can, and is the most compact and simple of any smoker yet out.

Is there not something wonderful in all these coincidences? Friend Clark, the bee-keepers of our nation owe you, too, a vote of thanks, for your very timely invention, so kindly offered. Just see how simple! a single piece of tin for the body, and another for the bottom, and the whole so compact that it can doubtless be mailed without any box at all! Nothing can be cheaper or simpler. We can give you a nice, large smoker, on this plan, for 75c. or 50c each, by the dozen.

I should have mentioned last month, that friend Corey, besides giving us the cold blast, has devised a most ingenious and cheap valve. In fact it is so cheap, that we can have a valve almost as easily as not to have one. It is simply to bore a hole in the bellows board, and tack over it an oblong piece of soft leather. For a hole $\frac{1}{4}$ in. in diameter, you want a piece of leather about $1\frac{1}{2}$ by $3\frac{1}{2}$ in., putting a tack in each corner. In making bellows, there will be fragments of leather left, that will answer for nothing else. Such valves work beautifully, are absolutely air tight, and I hardly know how they can get out of order. I have studied much on valves, and when I saw it, I felt ashamed, to think I had never thought of a thing so simple.

AN OPEN LETTER TO MR. COREY.

Mr. John G. Corey, Santa Paula, California:

Dear Sir:—I have the pleasure of mailing to your address this day, one of my large sized bee smokers, in which I have arranged and developed the principle you have so generously donated to the bee-keepers of America.

How far superior cold smoke may prove to that heretofore used, time and extensive use alone can determine.

To facilitate such practical experiment without possible loss, should it prove of no real value, I have constructed the attachment contained and shown herewith, which can be used or removed without trouble or expense, as may be desired.

I was pained to receive so unmerited a slur from a practical bee-keeper—one of a class of citizens whom it has ever been my greatest desire to benefit, and among whom it has ever been my pleasure and pride to associate.

I have a patent, it is true, covering my smoker, but my smoker has not raised the price of smokers, neither has it debased their quality; but, on the contrary, has done just what the framers of the patent law designed that it and all other real improvements should do; viz., placed within easy reach of the user or consumer the best quality of goods, at a reasonable price. Respectfully yours,

T. F. BINGHAM.

Otsego, Mich., Feb. 18, 1879.

GLUCOSE ONCE MORE.

BELIEVING you to be in error on the glucose question, and feeling convinced that you are exceedingly desirous to be set right if wrong, I desire to present the following points to you and your readers, feeling that, though all the points be not well taken, the importance of the subject should insure them an earnest consideration by all honest and candid honey producers and dealers.

1. Grape sugar and glucose are one and the same. Some dealers may call the liquid form glucose, but whether solid or in form of syrup, both are grape sugar, both glucose. This nomenclature is found in all scientific works. Any manufacturer who devi-

ates from it is facing all scientific usage, and of course must back down.

2. In your kind letter, as also in the current volume of GLEANINGS, page 41, you ask, "Can any bee-keeper convert grape sugar into glucose?" Of course not, no more than you can change a quadruped into an animal with four legs. They are already the same thing. Had you asked, can anyone convert solid grape sugar or glucose such as I sell, into the liquid, I would have answered, yes; just put it into a basin, add water, then boil on the stove till it is of a desired thickness, and you have it. The solid glucose you sent me, I treated that way, and return it to you in bottle No. 1.

3. You ask, "Can the grape sugar I sell be used to adulterate honey?" In bottle No. 2, I have mixed the syrup from the solid glucose half and half with white clover honey; in bottle No. 3, there is only one-fourth grape sugar; while bottle No. 4 is pure honey. Here then you have the full answer to your question. Owing to the greater specific gravity of the honey, the liquids do not readily mix; but by warming and shaking them, they mix thoroughly and afterwards remain so. Please repeat the experiment for yourself. You need no laboratory, or even skill; just use your cook stove, a basin, and water, as you do when you make a syrup from cane sugar to feed your bees.

4. But what of the quality of honey thus adulterated? I made the following test. I prepared four dishes as follows: No. 1, pure honey; No. 2, three-fourths honey; No. 3, two-thirds honey; No. 4, half honey; the remainder was syrup made from the glucose you sell to bee-keepers.

I had several persons test them. The following is the result.

	honey	$\frac{1}{4}$ g.	$\frac{1}{3}$ g.	$\frac{1}{2}$ glucose
President Abbot	best	good	poor	abominable
Mrs. " "	good	best	poor	poorest
Rodena " "	"	"	"	"
Prof. Carpenter	"	"	"	"
Mrs. Cook	"	"	"	"
Mrs. Fairchild	best	good	not good	very poor
Agnes "	good	good	best	"
Edwin "	best	good	good	poor
David "	good	good	best	"
Mrs. Beale	nice	good	poor	very poor
Miss Baird	good	good	best	poorest
Myself	good	good	fair	poor

I asked all to test my several grades of honey; no one, except Mrs. Cook and myself, knew what I had done till judgement had been rendered. I fully believe that with no honey to compare them with, few would complain either of that with $\frac{1}{4}$ or $\frac{1}{3}$ grape sugar.

SHALL BEE-KEEPERS USE GRAPE SUGAR?

An article which appeared in a late issue of the New York Tribune, gives my views on the subject. I should have less objection to artificial adulteration, if each can or bottle was labeled glucose and honey.

A. J. Cook.

Agricultural College, Lansing, Mich., Feb. 12, '79.

Many thanks, friend Cook, for your very faithful experiment. I give up, and beg pardon; the bee-keeper can, if so disposed, add as much as $\frac{1}{4}$ grape sugar to pure honey, or perhaps even more, and still have it pass as honey. It seems to prevent candying also; but the bottle No. 1, the contents of which you seem to think you had made into glucose, contained only solid grape sugar such as I sent you. Before me is a small bottle of glucose, that although so thick it will hardly run, has remained as clear as crystal, for the past 2 years, and yet has been exposed many times to temperatures far below zero.

Do not you and Prof. Kedzie owe me an apology, friend Cook? You failed with the basin on the stove; suppose you now try in the laboratory, to convert grape sugar into glucose. I have made many experiments with great care, to see if there was any danger of the grape sugar's being carried into the surplus boxes, when fed to bees to promote breeding, and I am satisfied that there is none.

[Concluded from last month.]

I cannot close the subject of stings, without speaking of the wonderful similarity between the mechanism of the sting of the bee, and the apparatus furnished many insects for sawing and boring into wood and other substances, for the purpose of depositing their eggs. Almost precisely the same apparatus is used, but the barbs on the extremities are saws instead of the sharp hooks. If you will look at the cut, you will see that but very little change need be made in these barbs to convert them into saw teeth, and then we should have an engine for cutting and boring holes, that might easily be patented, if old dame Nature were so disposed. Now listen. If the insect had but one saw, even though he had strength to draw it back and forth, his light body would not give him purchase enough to do much execution with it. It is true he might "dig in his toe nails," and hold himself down so that he could work it to some extent, but then he could not change his position, according to his work, etc. When the saw was worked, instead of its cutting into the hard timber, his light body would be simply slid to and fro; but, with two saws, like the barbed spears of the bee sting, working in a sheath to hold them together, he can stand his ground and use his enormous muscular strength to do rapid cutting, even if his body does not weigh only a half grain, or less. While one saw goes forward, the other goes backward, and the rapidity with which these insects work them enables them to make astonishing progress, even in substances so hard that one would not suppose they could make any impression at all. Now here comes in again the wonderful law I have spoken of so many times, on these pages. The insect that has the most effective and perfect set of tools will lay most eggs and have them most secure from the depredation of enemies, and his species will stand a better chance of survival than the individual or class with poorer tools. By giving a constant preference to the best workers, and taking into account how nature sports and varies, would it be strange, if, after the lapse of ages, the result should be the beautifully finished work we see through the microscope. I do not know that bee stings could develop into saws, or saws into bee stings, but if an insect should be found using its ovipositor as a weapon of defense, as well as for the purpose of egg laying, it might look as though the thing were possible. I am not an entomologist, and I do not know that

any such insect has ever been discovered. Who will enlighten us?

SPIDER FLOWER (*Cleome Pun-gens*). This has but recently been brought into notice as a honey plant. It belongs to the same family as the ROCKY MOUNTAIN BEE PLANT, which it much resembles. All I know of it is given on pages 292 and 329 of last year's GLEANINGS.

SUMAC (*Rhus*). This is a sort of shrub, or small tree, readily known by its bunches of bright red fruit, having an intensely sour taste. The acid property, however, seems to be only on the surface of the fruit, in the red dust that may be brushed off. I have had no experience with the honey, which the bees sometimes get in large quantities from the small greenish flowers, but give the following from page 96, GLEANINGS for 1874:

June 22d, 1874.—Contrary to expectations, we are now in the height of a wonderful flow of honey from sumac, which of late years has not yielded much. Everything in the hives is filled full, and I am kept busy hiving swarms, as it has become too much of a job to keep them from swarming by removing frames of brood. G. F. MERRIAM, Topeka, Kan.

SUNFLOWER (*Helianthus*). This plant embraces a very large family, but the principal ones for honey, are the common sunflower, and the Jerusalem artichoke. During some seasons and in some localities, the bees seem to be very busy indeed on these plants, all the day long. The mammoth Russian sunflower bears flowers of enormous dimensions, and from the way the bees crowd each other about the nectaries, one would suppose they yielded much honey. The seed, which is yielded in large quantities, would seem almost to pay the expense of cultivation. The following is taken from page 36, Vol. III, of GLEANINGS.

My boy had a small box of sunflower seeds, which he kept as one of his playthings. Last spring he accidentally spilt them in the garden by the fence, and, old as they were, they came up profusely. They looked so thrifty, I took it into my head to transplant them. I set them all around in the fence, out of the way, where nothing else would grow to advantage, and, if you will believe me, I had an enormous crop. When they blossomed the bees went at them in earnest, and after the bees got through with them, there were several quarts of seed. I sold a dollar's worth to my druggist, and the balance I fed out to my hens, and as a writer of old has said, I found nothing so good and nourishing for laying hens as sunflower seeds. Then I cut off the empty heads, place them near the bee hives, fill them with sugar and water, and that suits the bees to a T. So you see I was at no expense, and they paid well. I write this that others may be benefited as well as myself. Dr. R. HITCHCOCK.

South Norwalk, Conn., Feb. 2, 1875.

SWARMING. All animated nature seems to have some means of reproducing its like, that the species may not become extinct, and, especially among the insect tribes, we find a great diversity of ways and means for accomplishing this object. In the

microscopic world, we find simple forms of animal life contracting themselves in the middle until they break in two, and then each separate part, after a time, breaks in two, and so on. With bees, we have a somewhat similar phenomenon. When a colony gets excessively strong, the inmates of the hive, by a sort of preconcerted, mutual agreement, divide themselves off into two parties, one party remaining in the old hive, and the other starting out to seek their fortunes elsewhere.

I have carefully watched this proceeding, with a view of determining how the matter comes about, and whether it is because a part of the bees become dissatisfied with their old home, and seek to better their condition, or because the queen leaves, for some reason of her own (because she has not room to lay her eggs, for instance), and the bees simply follow from a sort of natural instinct, because she is the mother of the colony, and an absolute necessity to their prosperity. After seeing a number of swarms issue, and finding that the queen was among the last to leave the hive, I concluded that the bees take the lead, and that the queen simply followed as a matter of course, in the general melee. Suppose, however, that the queen should not take a notion to join the new adventure; well, swarms do often start out, with no queen accompanying them, and they usually go back to the hive after a time, to try it again next day. If she does not go then, nor at the next attempt, they often wait until they can rear a new queen, and then go off with her. After I was pretty well satisfied that this is the correct idea of their plan, a little circumstance seemed to upset it all. A neighbor, wanting to make an observatory hive, drummed perhaps a quart of bees from one of his old hives. As he had no queen, I gave him a black queen taken from a hive purchased several miles away. I mention this to show that the queen had never been out of the hive, in the location which it then occupied. After a day or two, this neighbor informed me that I had played a fine trick on him, for my queen had gone home, and taken his quart of bees with her. I told him it was impossible, for she had never been out of the hive, only when I carried her over in the cage.

We went and looked in the hive she came from, and there she was, true enough, with the bees she had brought with her stung to death, in front and on the bottom board. It is possible that the bees swarmed out first, but even if they did, they certainly followed

the queen in going back to her old home. We also know that bees sometimes follow a young queen, when she goes out to take her wedding flight.

It is my opinion that it is neither the queen nor the workers alone, that make the first start, but that all hands join together, and act in concert.

WHY BEES SWARM.

If you can contract the size of the hive, when honey is coming in bountifully, the bees will be very apt to take measures toward swarming, about as soon as the combs are full of brood, eggs, pollen, and honey. They will often wait several days after the hive is seemingly full, and this course may not cause them to swarm at all, but it is very likely to. As soon as it has been decided that the hive is too small, and that there is no feasible place for storing an extra supply of honey where it can be procured in the winter, when needed, they generally commence queen cells. Before doing this, I have known them to go so far as to store their honey outside on the portico, or even underneath the hive, thus indicating most clearly, their wants in the shape of extra space for their stores, where they could protect them.

I believe want of room is the most general cause of swarming, although it is not the only cause; for bees often swarm incessantly, when they have a hive only partly filled with comb. First swarms usually come about from the cause I have mentioned, but AFTER SWARMING (which see) often gets to be a sort of mania with the bees, and they swarm, apparently, *without* a reason.

AT WHAT SEASON BEES USUALLY SWARM.

The old adage runs,—

"A swarm of bees in May,
Is worth a load of hay;
A swarm of bees in June,
Is worth a silver spoon;
A swarm of bees in July,
Is not worth a fly."

There is much truth in this, especially if managed on the old plan; but with modern improvements, a swarm in July may be worth a silver spoon, or even a load of hay; possibly, both together. See AFTER SWARMING. A colony that was very populous in the fall, and has wintered finely, may cast the first swarm in May, in this latitude, but such events were very unusual before the advent of Italians. The latter often swarm during fruit bloom, and in some cases even earlier. In our locality, swarms do not usually issue until the middle or last of June. If the season is a little late, sometimes the greater part of them will come in July, and

we almost always have more or less swarming going on during our national holiday. At this time, basswood is generally at its height, and we frequently have quite a yield from clover, after basswood is gone. On this account, swarms that come out during the first week in July, usually get enough to winter, and are therefore worth the price of a swarm of bees anyway. I presume the old adage referred, principally, to the amount of honey they would store: if the July swarms did not secure enough to winter over, and were allowed to starve, they would not be worth the trouble of hiving them, and so they might be rated as of less value than a fly. Swarms that come out in June, would fill their hives, and perhaps make a surplus that, on an average, would bring at least a dollar, the old price of a silver spoon; while those that were so thrifty as to be able to start in May, would have the whole season before them, and if they did not get set back before white clover came out, would very likely make a surplus worth \$5.00, the market price of a load of hay. In some localities, bees seem to swarm in the latter part of July and Aug., and reports seem to indicate that they do it when little or no honey is to be had, and when the bees are disposed to rob; but such is certainly not the case here, for our bees give up all preparations for swarming, some little time before the honey crop has ceased. I do not remember ever to have seen a natural swarm issue here later than July, but in some localities, buckwheat swarms are a very common thing. Where the apiarist has plenty of extra combs filled with stores, it is an easy matter to care for and make valuable stocks of swarms that issue at any time.

SYMPTOMS OF SWARMING.

Although we can sometimes tell when bees are going to swarm, I do not think it will be safe, by any means, to assume that we can always do so. It has been said that the bees which have been clustering outside will, all the morning of the day they are intending to swarm, go inside the hive; but this cannot always be so, for I have seen a swarm issue while the loafers were hanging on the outside as usual, and at the sound of the swarming note, they took wing and joined in. Where a colony is intending to swarm, they will not be working like the rest, as a general thing, and quite likely, on the day they are intending to swarm, very few bees, comparatively, will be seen going out and in at the hive. With movable combs, we can generally give a very good guess of the dis-

position to swarm, by opening the hive. Bees do not, as a rule, swarm until they have got their hive pretty well filled up, and have multitudes of young bees hatching out daily. The presence of queen cells is generally considered an indication of the swarming fever, and it used to be supposed that there was no danger of swarming unless these were present in the hive; but since so many stocks of Italians have swarmed when nothing in the shape of a queen cell was to be found in the hive, the idea of removing queen cells, to arrest or prevent swarming, has been to a great extent abandoned.

Many think that the clustering of the bees on the outside of the hives is an indication that they are going to swarm. To a certain extent this may be the case, but it is by no means an indication that they are going to swarm very soon. I knew a colony, belonging to a neighbor, that hung out in great masses nearly a month, before the bees came out. His new hive was in readiness, and he staid at home and watched day after day, until clover and basswood both were almost gone, and finally they cast a truly large, fine swarm.

NEVER ALLOW BEES TO HANG OUTSIDE THE HIVE.

This swarm had hung outside the hive during the great honey harvest of the season, and as it is no unusual thing for a colony to store 10 lbs. a day, during the height of the season, they had lost at least 100 lbs. of honey, for the swarm was an unusually strong and fine one. I think they could easily have secured this amount if they had worked, but it is by no means certain that they could have been made to go to work, as they did after they swarmed, and were put into a new hive. Within two or three weeks after they swarmed, if I remember, they filled their hive, and gave about 25 lbs. of surplus. How shall we deal with such bees? Well, it will be an excellent problem for our A B C class to work out by actual practice. One way is to put section boxes on the top and sides, and then drive the bees inside with your smoker, and thus make them go to work, if you can. If they will not do so, get from some other hive some sections partly filled, and this will generally accomplish the object. If the bees are in a box hive, and you cannot at the time transfer them (it is rather unsafe to transfer during a great honey yield, with the hive full of honey, you know), fix a new hive all right, move away your old box hive, brushing all the bees off on the ground, and then give

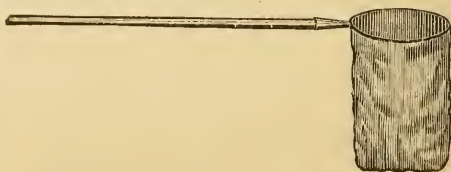
them a queen or a frame of brood in the new hive, as in ARTIFICIAL SWARMING, and make them go to work at something. You can do it every time, although it may be a few days before they get over their stubbornness, and get to work fully. Sometimes a very large, new swarm will hang out, and refuse to work. I have several times made such go in and attend to business, simply by the use of a smoker. If bees hang out during the hot weather of Aug., after honey has ceased coming, you can still set them to work by feeding, but unless you want more colonies, more combs built out, or can rear queens for sale, it may not pay to try to keep them at work. Towards night, after very sultry days, bees will sometimes hang out so as to cover their hives, and there may be no harm in allowing them to do this, although I should prefer to have them better occupied by doing something in doors. A really energetic colony will often be at work rearing brood at such a time, if they are gathering honey enough. Bees should always have room enough during the working season, to prevent their being crowded out, but we should not go to the opposite extreme, and give them so much that they feel cold drafts in their hive, and cannot keep up the requisite heat for comb building and brood rearing.

PREPARATIONS FOR SWARMING, TO BE MADE BY THE BEE-KEEPER.

Every apiarist, even if he have but a couple of hives, should make preparations for swarming, at least to some extent; for, even though artificial swarming is practiced, and the utmost care used to prevent any other, there will always be a chance that swarms may come out unexpectedly. Hives should be in readiness, and at least one should be fixed on the stand where you wish your next colony placed. Bank it round with sawdust, and fix it just as nice and level, as if it contained bees. Have some extra combs if possible, and have them placed in the honey house where you can put your hand on them at any minute; I would also have some hives where I could get a comb of unsealed larvæ, without very much trouble; that is, make up your mind what hive you are to go to, in case you should want such a comb in a hurry. Bees will often swarm on Sunday, and as we would not wish to work with our bees on the Sabbath more than is absolutely necessary, it behooves us to be at all times prepared to take care of a swarm, should it come, with very little trouble. I can remember having swarms on Sunday, when it became necessary to hunt up a hive, decide

on its location, hunt up some empty combs, and then look over my hives to see where there was one with no surplus boxes on, that I might get at a brood comb with as little trouble as possible, to put in the new hive, to prevent them from decamping. All these things take time, and more than one swarm has departed while a hive was being made ready to receive them. If you keep the wings of your queens clipped as I have advised, you will need some queen cages where you can lay your hands on them at a minute's notice, for there are times when you need to step about as lively as you would if a house were on fire, and you do not want to be bothered by hunting for things.

In our June No. for last year, N. N. Shepard, of Cochran, Pa., gave us a plan of an apparatus for hiving swarms, with some excellent instructions for using it. One of our hands uses an apparatus for catching swarms, as shown below.



The hoop is made of stout wire, and is about 20 inches in diameter. The ends are soldered into a tin socket that will receive a rake handle, or for tall trees, something still longer. The bag is to be put up under the swarm, and the hoop is then made to gently cut off the cluster so that the bees will fall into the bag. It is then turned edgewise, so as to confine them while it is taken down and carried to the hive. As the bag is made of cheese cloth, they have plenty of air. To get the bees out, turn it inside outward. The bag has the same diameter as the hoop, and is about four feet long. The whole apparatus would cost about 75c. This machine answers very well, where the cluster hangs straight downward, but where they get among the small limbs of trees, and in inconvenient places, the basswood box is the handiest, and I am inclined to give it the preference, as a general thing. In the engraving which we gave last year, the handle was represented as being put in the end of the box; Mr. Shepard writes that it should be put in the side, as shown below.



SHEPARD'S HIVING BOX FOR SWARMS.

HOW TO HIVE A SWARM OF BEES.

The great secret of this depends much on keeping in mind the queer propensity, instinct, or habit which bees have when clustered together in swarming, of running eagerly into any cavity, box, or hollow that may present itself. It was this queer fashion that first attracted my attention to the subject of bees. I have mentioned the circumstance in the introduction to this book. My friend, when he started after the bees, picked up a rough box that lay near by, and when they came to the ground, he simply set the box near them. Seeing the cavity or shelter offered them, they at once commenced humming, and traveled into it. My curiosity was unsatisfied, and I asked him how he knew they would go into the box. He said he knew they would because bees always went into a box or any similar thing that offered them shelter.

Their instinct seems to prompt them to seek any sort of a cavity, and this very point is the secret of the success of friend Shepard's swarming box. Those anger holes in the basswood box are sure to attract them, and they seem to enjoy hugely, the crawling in and then crawling out again, through the holes, beginning at once to claim it as their home, and being doubtless the better pleased with it because it has so many cool door ways where they can look out and get the fresh air in abundance, which they always need when the swarming fever is on them, and every bee is gorged with honey with which to commence provisioning the new home. In fact, their first act when getting ready to swarm, is to repair to the unsealed stores of honey and fill themselves with all they can contain. I do not know how they always behave after being thus filled, but in the few instances when I have been right on hand when the swarm issued, I have seen them commence to circle about the inside of the hive with uplifted wings, uttering the swarming note, until finally they began to issue from the hive. As they go tumbling out pell mell, hurry skurry, like a lot of urchins when school is out on a summer's afternoon, they seem, for the time, to have but one object in life, and that is to get as far and as speedily away from their home as possible.

By turning to QUEENS, you will see that I have advised clipping the wings of every queen as soon as she becomes fertile; if we do this, our queen can not take wing, as she usually does as soon as she gets out of the

hive (she is generally nearly the last to come out), but hops helplessly on the ground. If you are on hand, pick her up as soon as she makes her appearance, and cage her. As soon as the bees are all out, move the hive to a new stand, put a new hive in its place, and lay the caged queen down close by the entrance. The bees, as soon as they discover that the queen is not with them, will come back to their old stand, and enter the new hive. When they are going in nicely, release the queen and let her go in with them. All this is very simple, and we have practiced the plan quite extensively. To let the new swarm go to work at once, and prevent any possibility of absconding, we give them a single comb containing eggs and larvae, and fill out the rest of the hive with frames of fdn. The bees usually commence coming back, in about 5 or 10 minutes, but they may cluster and remain away 15 minutes, or in extreme cases, as much as a half hour.

They will always come back sooner or later, so far as I have been able to learn, unless they have an extra queen, or get another queen by uniting with another colony, or something of that sort. See **ABSCONDING SWARMS**. If you do not find the queen as she comes out of the hive, and she has a clipped wing, you may be pretty certain that she will come back. **AFTER SWARMS** (which see) have unfertile queens, and consequently their wings can not be clipped. If you see them when they come out, and succeed in catching them, you can often hive the swarms in the same way; but the young queen will sometimes put right out again, and you must expect her to show all sorts of eccentric maneuvers.

If you do not wish to move the old stock away, you can tie the caged queen to the end of a pole, with some leafy twigs near her, and usually succeed, without much trouble, in getting the bees to cluster around her. We have usually kept on hand for this purpose, a common rake, with a bush tied to the end of it. If they commence clustering on a limb, hold it near them while you shake the limb and keep it in motion, and you will soon have them on your rake, to be carried where you please. If your hive is already fixed, lay the rake on the ground in front of the hive, and the bees, finding the cavity, will at once commence to travel in. If they do not discover the entrance at once, guide them to it with a twig; after they are going in nicely, release the queen and watch to see that she goes in with them.

TWO OR MORE SWARMS COMING OUT AND UNITING.

When the swarming note is heard in the apiary, it seems to carry with it an infection; this may be a mistake, but in no other way can I account for swarms issuing one after another, while the first is in the air, unless they hear the sound and haste to go and do likewise. Of course, they will all unite in one, and as many as a dozen have been known to come out in this way, and go off to the woods in a great army of bees, before anything could be done to stop them. If your queens are clipped, and you "hustle around," and get them all in cages deposited in front of the hives, they will usually separate and each bee go where he belongs. Unless you have plenty of help, you will be unable to get the hives all moved away, and a new hive fixed for each one before they come back. In this case, they will go back into their old hive, and, if the queen is released will sometimes go to work, but often, they will swarm out again within a few hours, or the next day, and if you keep putting them back, they will soon attack and kill their queen, and loaf about until they can rear a new one, and then swarm. This is very poor policy, and we can by no means afford to have such work. If they swarmed for want of room, they may go to work all right, after having room given them. If they come out the second time, I should give them a new location, divide them, or do something to satisfy their natural craving for starting a new colony.

To go back; suppose they get a queen or queens having wings, and cluster in one large body. In this case, you are to scoop off bees from the cluster, with the swarming bag, a tin pan, or a dipper, as may be most convenient, and apportion parts, made about as nearly of the size of a swarm as may be, about in different hives. Give each hive a comb containing eggs and larvæ as before, and then get a queen for each one if you can. In dividing them up, should you get two or more queens in a hive, they will be balled as I have before described, and you can thus easily find them. If more than one queen is in a hive, you will find a ball of bees, perhaps the size of a walnut or hens egg, about them, and this can be carried to the colony having none. If you cannot tell at once which are queenless, you will be able to do so in a few hours, by the queen cells they have started. If you are more anxious for honey than bees, you may allow two swarms to work together, and if you give

them sufficient room, you will probably get a large crop of honey from them, but this plan does not pay, as a general thing, because the extra bees will soon die off by old age, and your colony will be no larger than if the queen had had only her ordinary number of bees.

PREVENTION OF SWARMING.

If we can entirely prevent swarming, and keep all the bees at home storing honey all the season, we shall get enormous crops from a single hive. Whether we shall get more in that way, than from the old stock and all the increase, where swarming and after swarming is allowed, is a matter as yet hardly decided. If a swarm should come out in May, and the young queens get to laying in their hives by the first of June, their workers would be ready for the basswood bloom in July, and it is very likely that the workers from 3 queens or more would gather more honey than those from the old queen alone. But another point is to be considered. The two or three new colonies must have stores for winter, and as it takes nearly 25 lbs. to carry a colony through until honey comes again, this amount would be saved by the prevention of swarming. Where one has plenty of bees and desires honey rather than increase, a non swarming apiary would be quite desirable. Then how shall we prevent swarming? We can do it very often, by simply giving abundance of room in the surplus receptacles, just as fast as more is needed, but no faster. This plan is the one generally in use. If the bee-keeper is on hand to look after his bees carefully, he will get along very well usually. But suppose he is not on hand. In that case, if the queen has both her wings, she will go with the swarm and cluster. If the queen is clipped, she will hop out on the ground and may stay near the entrance until the swarm commences to go back, when she will be attracted by their humming and go in with them. After watching their manœuvres many times, I am inclined to think that, in such cases, about half the queens get away and are lost, when no one is near to direct them. In case the queen is lost, the bees come back to the hive, and do little or nothing until a new queen is hatched, and then swarm again. This is a great loss, for the use of a good queen a week or ten days, in swarming time, to a populous colony, might be equivalent to a swarm of bees; besides, if the bees were at work in the boxes, almost all work would be suspended until they were again

in possession of a queen. To prevent this loss, Mr. Quinby invented what is called

A QUEEN YARD.

This was a little box, perhaps 20 inches square, with sides $2\frac{1}{2}$ in. high. On the top edge of these sides tin was nailed, so as to project inward perhaps a half inch. This was so placed before the hive that the entrance opened directly into one side of the yard. The bees, when at work, came out into it and took wing. When they swarmed, they took wing without any trouble, but the queen, after trying to fly, would try to crawl up the sides, and could not on account of the tin ledge. She could only get back into the hive, which she would be sure to do about as soon as the bees got back. I believe these worked all right, except that they were cumbersome things to have about in an apiary, and that the bees often killed the queen after trying several times and finding she was never with them.

Before we had Italians, it used to be considered that cutting out all the queen cells, as fast as built, was a preventive of swarming. But as Italians often swarm without any sign of a queen cell, the plan has been pretty universally dropped. Cutting out all the queen cells except one, after the first swarm has gone out, will of course prevent any third or fourth swarms from coming out, if you are careful not to overlook any cells. See AFTER SWARMING. I believe, however, that this plan is not much in vogue at the present time. Perhaps it is because, where colonies are in the habit of being overhauled enough to perform such operations, artificial swarming is made to take the place of natural swarming, or what is still better, a judicious combination of the two modes is practiced.

A few years ago, it was quite common to talk of non-swarming hives, and there were many inventors who claimed to have accomplished the end desired. The most of these hives were covered by a patent, and they have gone the way of most, if not all, patented bee hives. Giving the bees abundant room, both over the cluster and at its sides, will do very much towards making a non-swarming hive, but they will swarm occasionally, in spite of us. Keeping the hive well shaded, or having the walls entirely protected from the sun, will do much to discourage swarming, and the chaff hive has for this reason proved about as good a non-swarmers as any brought out.

KEEPING BEES IN UPPER ROOMS AND GARRETS.

This plan for keeping a single colony, to furnish honey for the table simply, has been in vogue for perhaps centuries back. If the room is small, and made perfectly dark, the hive being placed back a few feet from the entrance in the wall, the bees will seldom swarm. One or more sides of the hive are generally removed, and the bees build their combs on the outside of the hive, or against the walls of the room, where the owner can go with knife, plate, and smoker, and cut out a piece for the table, without opening any hive, or disturbing anybody. In fact, he can consider this his "honey room," and leave the honey stored there year after year, if he chooses. When a friend calls, he can say, "Will you have a slice of new honey? or will you have one a year old? or two years old?" He might even have it ten or a dozen years old, for aught I know, if he has a taste for antiquated honey. Would not such a honey room be nice? While writing about it, it has occurred to me that a room of this kind, fitted up with all modern appliances, might be a very pretty and a very useful thing. With the experience I have had in the house apiary, however, I am inclined to think that, where there is so much room, there would be a great disposition in the bees to loaf and cluster on the sides of the room, in the shade, instead of going to work. Now for the objections.

If the hive and honey is close by the entrance, the bees will swarm as much as in the house apiary. If it is a yard or more back from the wall, the bees, not being able to take wing in the dark, will crawl all this distance on foot, which would prove a great loss of time and strength, and consequently, of honey. Providing the plan succeeds, you get a good crop of honey year after year, it is true, but you have all the time only the efforts of a single queen. While your honey increases, your gathering force is no more, after the lapse of 10 years, than it was before. If one colony is all you want, this may be all right. The queen cannot live more than three or four years, and at her demise a new one must be reared and fertilized. For some reason, I know not what, she is very often lost, in these garrets, and the colony dies of queenlessness. Worst of all, they will often swarm, and keep swarming, until nothing is left of them; but I believe swarming is rather the exception, and not the rule. Now who will have the nicest honey room, close to, or adjoining the pantry? Have it so your wife can cut out the honey any day in the year, without saying a word to any-

body. When it is all in nice working trim, send me a description of it.

Very often, the readiest way of getting a swarm, especially if you are away from home and without tools, is to cut off the limb on which they are clustered and carry them where you like. If the limb is small, you can cut it with a stout knife; but if large, a saw will be needed. The teeth should be fine, that there be not too much jarring, and it would be well to make a slight cut first on the under side, that the bark may not hang when you get it nearly off.



CARRYING HOME A SWARM OF BEES, BY SAWING OFF THE LIMB.

A small pruning saw, such as is shown in the picture, is very convenient for getting in between the limbs; if bolted to a pole, all the better. When the limb begins to fall, catch it with a pitchfork, or get some one to do it for you. If you catch it properly with the fork, you can let it down very quietly. I have carried a swarm of bees on a limb, $\frac{1}{4}$ of a mile or more, without any trouble. Where the limb cannot well be cut, or the cutting would mar a valuable tree, I often get a basket and tie some twigs to the bottom on the inside, then hold them over the cluster and with another twig, make the bees climb up into it, and carry them home, giv-

ing the owner of the tree a dollar or half a dollar for the bees, according to the season, or as we can agree.

HIVING BEES BY MACHINERY.

A friend sends us a model of a machine for taking down swarms. As it is ingenious and a curiosity, if nothing more, I have had our engraver make a copy of it.



JACKEL'S MACHINE FOR TAKING DOWN SWARMS.

The machine is made for hiving bees; it is 10 feet high, and can be made higher if wanted; it is so light that one man or boy can carry it easily, and it only cost a few cents to make it. Set it with the cross pieces on the ground, and with the little pulley up; then turn your crank so as to let the table for the hive slide down; put your bee hive on it, and turn your crank until the hive is right up to the bees that have lighted on the tree or bush; put a pin in one of the holes to keep the crank from turning back, then get up on the ladder and start them to going in; when they are in, pull the pin out and let them down slowly, and set them where you wish to have them.

I had one in use during the summer, and I think it is real fun to hive bees with it. JOHAN JACKEL.

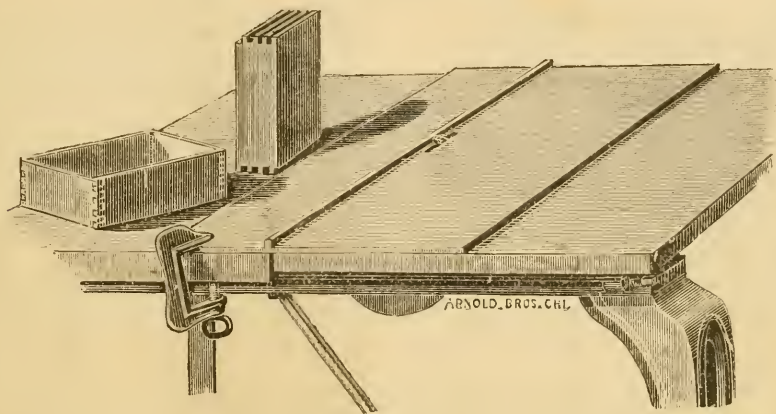
Bell Plain, Wis., Jan. 6, 1879.

I fear it is too much machinery, friend J., but we will let our readers try it if they wish, and they can then report.

The following, in regard to Simplicity sections, is from J. Oatman & sons' catalogue:

DOVETAILED SECTIONS.

Four and one fourth by four, and one fourth inches, eight of which fill a Langstroth frame, are very desirable for trade in many places. The local trade in N. Y. closed out the entire stock of honey in these sections, this season, long before much of a hole had been made in the prize box honey, or any other style, on the market. Dealers informed us much more could have been readily sold at 20 cents, had it been in stock. This style is very convenient for those using Langstroth or Simplicity hives, from the fact that they may be started in the body of the hive below, and raised to the upper story to finish when well started.



HOW TO MAKE DOVETAILED SECTION BOXES WITH A FOOT POWER SAW.

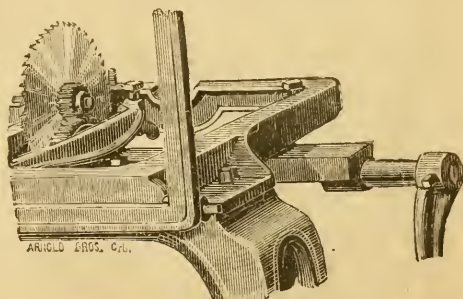
MAKING FRAMES, SECTIONS, &c., BY FOOT AND HAND POWER.

SO many questions have been asked about making section boxes, frames, etc., with the dovetailed corners, that I have given you the engraving above. It can be used with any kind of a buzz saw, and you can make the joints just as tight as you please. If you make them so they will have to be driven together with a hammer or mallet, they may be thrown on the floor, without racking the joint. Of course, the joint will be much stronger if you make your stuff pretty thick, and if made as thick as we ordinarily do where we nail work, it will be pretty nearly as strong. For honey boxes, we do not ordinarily wish to use more than $\frac{1}{2}$ inch stuff, because much wood with the honey is objectionable. Any foot power saw will answer. Get a saw that will cut about a $\frac{1}{2}$ inch groove, or wider if you wish; a thick saw can be used, or you can set the teeth of an ordinary saw very broad.

Put a thin board, $\frac{1}{4}$ inch thick, over the saw, with a rib fastened to it by slender brads, as shown in the cut. This rib is for the track. One of iron or steel would be better, if much work is to be done. The distance of this track from the saw decides the looseness of your joints. The figure represents a piece of $\frac{1}{2}$ inch or $\frac{3}{4}$ inch board. The block is first run tight up to the track, then the groove thus made is next run on the track, and so on through, always keeping the last groove made, on the track. When your blocks are all grooved, put on an ordinary rip saw, and saw off strips. If rightly done, 4 of the sticks should make a frame as shown. You can use a cutter head in place of the thick saw if you choose, but we decidedly prefer the thick saws, because they have so many more teeth to do the work.

Now, if you depend on foot power alone to do the work, you will find one saw all you can use at once, and when you come to rip up 2 inch stuff for sections, you will find the task a pretty severe one. Our enterprising friends, Barnes Bros., have come to the aid of those using the foot power machines, and have rigged a crank as shown in the cut. With a large saw, and a man or boy to

turn, 2 inch stuff can be ripped to very good advantage, much as on the hand ripper; that is, by this attachment, they make the foot power saw answer for a hand ripper too.



HAND POWER ATTACHMENT FOR BARNES' FOOT POWER SAWS.

The price of the attachment is \$5., and they can be attached to any of the foot power saws they have sold. Orders can be sent to us, if desired. The machine is made with cut gearing, and seems to be very strong and serviceable.

I do not like to mar the letters of our contributors, by cutting out portions of them, any more than I can help; but sometimes, when you speak unkindly of each other, I feel a strong disposition to check you by playfully holding my hand up, so that the one to whom the unkind words were directed, may not hear it. When you see long dashes in a communication, you may know it is intended for a pleasant chiding. You will permit me to take this liberty without being offended, will you not?

DEALERS in bee keepers' supplies are sending out very neat and complete catalogues, this season. I think it will be a good idea to have all of them or at least, many of them, for they all contain more or less valuable information.

Catalogues have been received from the following persons: C. F. Muth, Cin., O.; J. Oatman & Sons, Dundee, Ill.; J. C. & H. P. Sayles, Hartford, Wis.; Lewis & Parks, mentioned last month—Watertown, Wis.; A. E. Manum, Bristol, Ver.; M. Richardson, Pt. Colborne, Ont., Can., and B. O. Everett, Toledo, O.

Heads of Grain, From Different Fields.

PROPOLIS FOR SOAP MAKING, AND COTTON SEED IN PLACE OF CHAFF.

I HAVE found propolis to be an excellent substitute for rosin in the domestic manufacture of soap. One pound of propolis being used to 5 lbs. of soap grease.

I use cotton seed instead of chaff for quilts, division boards, &c., and find them to be an admirable packing material. The quilts are somewhat heavy, but this is not a disadvantage, as the enameled cloth is pressed into close contact with the frames, so that no comb can be built over the top bar.

M. W. CHAPMAN.

Mayhew Station, Miss., Feb. 1, 1879.

EMPTY COMBS FOR MAKING ARTIFICIAL SWARMS.

How are the A B C class to form artificial colonies, when they have no spare combs? You direct in A B C part first, that the frames taken out of the mother colony to form the new colony, must be replaced with frames of worker comb. Are you aware that but few of the A B C class have any extra combs? I think you do that class an injustice, as you give no instructions for artificial swarming, unless they have extra combs. The old and well posted bee-keepers, no doubt, have such things, but the A B C man, — no, sir; he has not this article.

Now, I have 5 colonies, all wintering on from 5 to 6 combs each; will they, early in spring, build drone comb to fill up the hive? or will they build worker comb? or will they build none, till they swarm? How would it do to give them worker fdn., early in spring? Will they fill it out properly before swarming time? Yours truly,

"TAR-HEEL."

Wilmington, N. C., Jan. 7, 1879.

Are you not a little hasty, my friend? If you look again, you will find that I do mention using fdn., in place of empty combs.

EMPTY COMBS FOR ARTIFICIAL SWARMING.

These will almost always be on hand in swarming time, but if not, a frame containing a sheet of fdn. may be put in place of any comb taken from a strong colony. The fdn. is fully as good as the natural comb, and, in some respects, even better. If you have no fdn., let the bees build combs, one at a time, in new frames, watching them to see that they do not build drone comb. If they will not build worker comb, contract the space with a division board, and have the combs built in weaker colonies. Using frames of fdn. is, however, far the better way. During fruit blossoms, and long before swarming time, an ample supply of beautiful combs may be secured, built out from fdn.

CHAFF HIVE COVERS.

We bought several chaff hives for our own use last summer, which please us very much; we have one suggestion to make, however. The covers of most of ours (about 8 in number) leak more or less when we have long continued rains; would it not be well to make them pitch a little more, that the rain may more rapidly flow off? STAIR & KENDEL.

Cleveland, O., Jan. 23, 1879.

We have had some trouble in keeping the roof tight, and to make a sure thing of it, have just decided to cover them all hereafter with tin. We have devised a plan for making a very neat and strong job of it, and as it saves all the time of cutting the grooves, besides allowing us to use cheaper lumber, for the roof boards, we have decided to furnish them thus, at 15c. extra. We will send, at the above price, the two sheets of tin

needed to make them tight, to you and to all the rest who have purchased chaff hives of us, and which have troubled them in the way you mention. Please accept thanks for directing our attention to the matter.

ONE UNFAVORABLE REPORT FROM GRAPE SUGAR.

I received the grape sugar, but could not make the bees touch it. I then mixed it with honey and fed it to 2 light swarms. Ere long, both colonies were dead. The sugar was light colored, but had quite a bitter, disagreeable taste. Whether it was the sugar that killed them or not, I can't say, but I could account for it in no other way. I dare not feed any more of it. Past GLEANINGS speak of its being pleasant to eat, and of its improving the flavor of table syrups when mixed with them. I can but think that something was wrong with it.

Orangeville, O., Jan. 10, 1879.

N. CASE.

The sugar was ordered in Nov., and must have been fed after the approach of cold weather. Had they been fed on cane sugar, or honey even, it would have been nothing strange, had the two light swarms perished, so late in the season. I give you the facts, and you can draw your own conclusions. If our friend will return the sugar, I shall have no fear in feeding it to my bees. It always has a peculiar bitter taste, which would always betray it, even if it could be used to adulterate honey.

STAND FOR CHAFF HIVES.

Place a chaff hive on a box, 1 inch less in diameter than the hive, and 4 in. deep in the clear, having top and bottom, and filled with chaff. All moisture drips to the ground without dampening the bottom board, and the chaff seems as sensible as frosty atmosphere between bees and frozen earth.

JENNIE LEETE.

West Amboy, N. Y., Jan. 20, 1879.

Your remarks are very sensible, friend Jennie. I have recommended placing the chaff hives on 4 half bricks, but your frame filled with chaff, I think, would be still better. If set directly on the ground, it would very quickly rot; perhaps we could imbed the bricks so as to support this frame, and allow nothing but the chaff to come directly in contact with the ground, and when it is decayed, put in some fresh. The siding to the chaff hive extends a little below the bottom board, for the express purpose of carrying all the water down beyond it.

HASTY CONCLUSIONS THAT A HIVE IS QUEENLESS.

The queen has been a great puzzle to me. After 3 weeks, when it was time for the young bees to cut out, I opened the box and finding no brood I supposed her dead and gave them a black queen. In about 7 weeks to my great astonishment hybrids came out. They didn't spread much. I give them credit however for being the grandest thieves in creation. They have increased wonderfully, and now there is a large amount of brood.

Botland, Ky., Jan. 27, 1879.

S. T. HAMILTON.

You are not the first one, friend H., who has concluded the queen was gone, simply because he could not find her and saw no brood. In such a case, give them some brood from another hive, and see if they start queen cells.

THE CENTURY PLANT FOR HONEY; HURRAH FOR NEW MEXICO!

I now have 3 colonies of Italian bees, which I got from California for \$50 per hive; cheap enough, after being hauled 750 miles.

A Langstroth hive, poorly made by one of our carpenters here, would cost \$30.

I have watched our wild, ground bees at work here on many plants. If the Italians collect honey from them, I will send you seeds of the best honey plants.

A large century plant flower, turned upside down, and jarred over a large dish or pan, will give a pint of honey each morning, for many days. A very large plant will have from 6 to 18 such bunches of bloom. Indians collect honey from it to eat. The berry or fruiting yucca has several dozen flowers as large as an egg, and each flower has at least a teaspoon full of honey. The fruit is 2 to 3 in. in diameter, 6 to 9 in. long, and good to eat.

If my bees do well, I will want everything in the apiary line.

JAS. K. METCALFE.

Silver City, New Mexico, Jan. 18, 1879.

Six or seven pints of honey a day, from a single plant, looks, to us Northerners, like a pretty big story, friend M., and you must not be surprised if you see a lot of us Yankees traveling off down there, about the time this gets into print. Has anybody else noticed this wonderful honey yielding property of the century plant.

TIN CANS AND PAILS FOR EXTRACTED HONEY.

For several years past, I have sold more or less extracted honey in pails, with an annually increasing custom. I keep on hand a supply of pails varying in size, from one quart to 5 gallons. My principal business point is Jackson, and I seldom go there without meeting one or more customers in want of honey.

They give me their orders, stating the amount and kind (clover, basswood, or fall honey) wanted, which I deliver the next time I go to town, leaving the pail with the customer until it is emptied. To save keeping an account and a possible loss of pails, they should be sold with the honey when delivered, and then, unless the buyer wishes to keep the pail, it should be bought back when returned or called for.

J. H. TOWNLEY.

Tompkins, Mich., Dec. 28, 1878.

SALTING BEES.

I do not think bees require much salt. I have given them salt in different ways, but they like best to sip it, after a rain, from the ground where stock have been frequently salted, which shows that they like it in the most diluted form.

WATERING BEES.

There is too little attention paid to this. I set out pans and little troughs, but never enough. Last year I had 15 feet of trough, with corn cobs set in it in the shape of an X. It would do any bee-keeper good to see them get all they want, with no danger of getting drowned. Then you can sprinkle on a little fine salt, just to suit their fancy.

West Point, Ia., Jan 15, 1879.

J. E. JARRETT.

BEES GETTING LOST ON SNOW.

Bees may be kept from getting lost on the snow (as E. A. Gastman complains), by spreading a little straw in front of the hive, say for 3 or 4 ft. I have tried this plan this winter, and am satisfied that I saved a good many bees.

GLUCOSE AND GRAPE SUGAR.

You say "I have never sold any glucose." Did you not advertise it? You inserted the Davenport Co.'s advertisement, and stated below, "We can furnish the above, at an advance of—etc." If you have not sold any, was it *your* fault?

SECTION BOXES.

In the Jan. No., of 1878, you say that a glassed Betsinger box weighed (with light glass) eleven ounces, and that it did not average over 2 lbs. when filled. Let's look into the matter a little closer. I took a 5½x6½ box, received from Doolittle, and glassed it with glass that I took indiscriminately, and weighed it; it weighed 9½ oz. You say 16 sq. in. (where the sections are 15-16 inches wide, and separators used) weigh 1 pound.

A Betsinger box 5½x6½ inches outside, 5x5½ inside, contains about 27½ sq. in., which, according to your estimate (16 sq. in. to the lb.), would weigh nearly 1½ lbs., instead of 1 lb. 5 oz., as you state. This would give the weight of the Betsinger box as follows: 1½ lbs. plus 9½ oz., which equals 2 lbs. 5½ oz. There is certainly a "big" mistake somewhere. It is my impression that the Betsinger sections, when filled, will average 2½ lbs. glassed.

WIRED FOUNDATION.

In Feb. No. of the *A. B. J.*, page 71, T. F. Bingham says: "The pressing in of the honey, or the raising of the cell on the other side, invariably produce the original and time honored base." Now, will Mr. Bingham tell me, which? also whether the drawing out of the cells, or the pressing in of the honey, will bend the wire in the bases of the cells, so as to adapt it to the "time honored" shape of the cell? or, in other words, I will state, as my humble opinion, that bees are not capable of bending a straight wire to the form of the base of a cell, and that the only way the bees can manage is to leave such cells as contain wire, flat at the base, or else fill in with their own wax until the cell is of proper shape.

T. F. C. VAN ALLEN.

Adams' Station, N. Y., Feb. 5, 1879.

Thanks, friend V.; the plan of spreading straw has been given before, and, I believe, answers a good purpose where the bees are healthy, but when affected with dysentery, they seem to take no pains to alight on the straw. I did advise trying glucose, before so much was said about adulteration, and I even ordered a keg of it to experiment with; but, for some reason, Mr. Best never filled the order. After I was accused of feeding it, I was glad he did not, and that I had never bought or sold a pound of it. The figures I gave with the Betsinger box were from a sample section that Mr. Doolittle brought me, and the empty glassed section was one from a hive bought of him. The glass was rather thin, but the ends of the section were of elm, that they might hold nails better, and elm is rather heavy wood. Sections filled with honey often vary as much as ¼ lb. in 2 lbs.

Are you not a little hard on Mr. Bingham? The bees certainly make the flat bottomed cells concave, but on watching them closely, they seem to do it by scraping the wax away, and crowding and burnishing it with their mandibles; where the wires pass, of course, they do no such thing.

CARDS TO PUT ON SHIPPING CASES OF HONEY.

I enclose you one of the cards which I tack on the cover of each case of honey when shipped.

SMASHED!

This Fine Honey will be "Smashed" and Spoiled unless handled carefully. THIS SIDE UP.  Will you please **HANDLE WITH CARE!**

Of course, you will easily see that it is *not* original, as the idea and almost the words are copied from your "killed" card; but it answers very well. I put the address on a small card right under this one, so they have to read the large one first. If you think it will pay to print some large cards, something like this, in black on red or buff cards, I will take a few. Danville, P. Q., Dec. 24, '78. GEO. O. GOODhue.

Thank you, friend G.; I will try to have some cards in readiness, before another season.

NEW ZEALAND.

As I am just about starting an apiary, on a large scale, and am desirous of securing the latest improvements, I have taken the liberty of writing to you to ask you to send me a price-list or catalogue.

I should like a machine for making foundation comb, and the best kind of honey extractor or sling, and any other late improvements; also the best book on working with movable frame hives.

I believe, if there was an agency established out here for the sale of these things, that a large trade might be done, as, at present, there are none of the latest improvements used and they cannot be got, out here.

I believe New Zealand to be one of the finest countries in the world, for bee-keeping. I have kept a

few hives for years, and I have taken, on an average, 100 lbs. to a hive in the season, and in the middle of a township situated on the sea coast.

ISAAC HOPKINS.

Grahamstown, New Zealand, Jan. 5, 1879.

NAILING HIVES WITHOUT GAUGE FRAMES; FDN. BREAKING DOWN. ROBBERING, ETC.

The hives I sent for last season, came to hand in just the right time. The bees were swarming, and I had got down to the last hive, when they came. I put up the 10 in one day and had no gauge frames to hold them while I nailed them. I nailed 2 cleats to the floor to hold one end, and had a clamp to hold the top or other end. I am no carpenter, and your all-wood frames had to be nailed to make them stick together. The express charges on 10 hives were \$4.10; high, I thought.

The fdn. in the brood chamber broke down badly, and put my bees back instead of helping them. First swarms, hot weather, and honey coming fast was the reason. I took platefuls of broken down combs from hives.

I put 2 queen cells in the upper story, above the brood frames, and they hatched all right. One of the best queens I have, was raised from larvae that you sent me.

How to stop robbing:—I put a sheet over the hive and tuck it around, which keeps all in that are in, and those out that are out, and those inside can not feed honey through it. I keep them there until evening with no danger of smothering the bees. You can feed a weak stock inside of a sheet, on the alighting board.

THOMAS BICKERTON.

West Elizabeth, Pa., Feb. 6, 1879.

Your plan of nailing the hives, unless you are very careful, will not insure them all of an exact size and shape, so certainly as will the gauge frames.

If your fdn. was securely fastened to the top bars, and then broke down, it must have been made of a rather soft lot of wax. Dark wax from old combs, of a greenish shade, we have found to stand the hot sun rather better than the light yellow wax. We now sort our wax so as to have the lightest made into drone comb for the sections, and the darker for brood combs.

Hives in the flat should always be ordered by freight. A similar plan to stop robbing is given in another place. I would not trust too much to it. Where they are robbing feebly, grass or bushes put around the hive, or a pane of glass set up before the entrance, will often induce the robbers to go home.

"GOING IT BLIND."

I went it blind last year, and got 1200 lbs. of box honey, from 25 stocks. They increased to 31 only, and are all in good condition. I have 3 Italian queens, but my former lot are all hybrids. I bought 1 queen some 4 years ago, and paid \$10. I found that was too high for bees, quit all that foolishness, and am trying to live a more moderate life. I do not doubt but the Italians are best, but I find, if you keep stocks strong, that there's where the secret lies.

EXTRACTING FROM BROOD COMBS.

Do you think it best to use the extractor on the brood combs? O. L. MAGRUDER.

Bardstown, Ky., Jan. 31, 1879.

I do not know, my friend, but I should "go it blind" again, as you seem to have done so well.

I would not, as a general thing, extract from the brood combs at all, and if I did, I would do so only in the fore part of the season. If your hive has but one story, extract from the outside frames, where there is generally no brood, and from those containing but little brood. If the hive is broad enough, the outside frames take the place, in a measure, of the frames in the upper story.

▲ MINISTER'S TRIALS.

Brother Whitman (who had 23 hives of bees) gave me one of his best swarms in an old fashioned box hive. After he had taken out a number of the plugs on top, he covered the holes with fine wire, and also covered a space above the entrance holes in the same manner. He then brought the bees and my wife and myself home, 28 miles. We came in a very easy spring wagon, and when we reached home the bees were very active, and to all appearance doing as well as possible.

I put them in my cellar, and examined them carefully. Bro. W. told me to leave the wires on the ventilating holes, as he thought they would have an abundance of air. They were put in the cellar Saturday night; on Monday, they were very busy humming in the hive; on examining them on Wednesday, alas! they were dead! the air holes all closed up with their little bodies!

Be sure, my brother, this was a sad disappointment to us, and as wife said, it was hard to keep the tears back. On opening the hive, I found them all wet and black; no combs were broken; they were smothered. There was a peck of bees, a good deal of young brood, and many young bees that would have come out in a few days, and honey to keep them till spring. They had made 146 lbs. of section honey last season.

REV. C. SMITH.

Plover, Wis., Feb. 6, 1879.

We give the above as a warning to our readers to be careful about giving too little ventilation. With a strong colony of bees, such as the one described, either the whole top or the whole bottom of the hive should have been covered with wire cloth, even in cold weather.

INTRODUCING QUEENS TO ARTIFICIAL COLONIES.

Mr. West, author of a "Guide to Bee-Keeping," says he never knew a queen to be lost, if introduced to an artificial swarm, in the following way. Take as many frames as you want, with the adhering bees, from the same number of hives; put them in a new hive, and then introduce the queen to the new colony. I think it would work well. Let me have your opinion or judgment on it, in March GLEANINGS.

J. F. EDWARDS.

Seabree, Ky., Feb. 12, 1879.

In consequence of our buying so many queens last season from our Southern friends, we had, perhaps, a better opportunity than any other apiarist has ever had, of giving the different modes of introducing queens a very thorough test. We introduced them in our own apiary, by several different methods, one of which was the one you have described. While we found it generally successful, it sometimes seemed to give more trouble than any other. We remember once keeping a queen caged four weeks, before the colony, made up of frames from different hives, would accept her.

As I have said before, I know of no infallible method, without close watching both before and after the queen is released.

CUTTING BEE-TREES AND TRANSFERRING IN WINTER, AND HOW A BEE CARRIES PROPOLIS.

I helped to cut a bee-tree on the 16th of Jan., and got some honey and a fine swarm of bees. After losing a pint or more that fell in the snow, I brought the little fellows home, and put them on 5 American frames partly filled with their own comb. I then gave them a box containing about 6 lbs. of sealed honey.

About the first of this month, I examined them to see what they were doing, and found all the honey and most of the comb gone out of the box. I lifted one of the frames out, and was surprised at the work they had done, in repairing old and building new combs. The wax came from the box given them, I suppose.

I found larvae all the way from the egg to sealed brood, proving the presence of the queen, which I was glad to know, as I saw nothing of her in transferring.

She had commenced to lay about 6 days before we made her acquaintance, or that of her family rather. Have you any Italians that beat this black queen, for early breeding and energetic business habits?

I am afraid I shall weary your patience, but I must tell you of something I never read of. I was watching a bee load up with propolis that had been thrown down on a box from some old frames hanging overhead. He daubed a quantity of it on his legs in the usual way, then gathered up about half as much in his mouth, and struck a bee-line for the apiary. I watched a few minutes, and saw another, or the same bee, repeat the trick. T. C. MARSH.

New Madrid, Mo., Jan. 10, 1879.

THURBER'S DEFENCE.

The following is taken from the *N. Y. World*:

"Messrs. H. K. & F. B. Thurber & Co., who a little more than two months ago succeeded in landing 200,000 lbs. of honey in England by one shipment, and all in good condition, deny the report lately published that the honey had been seized by the British authorities for violation of the Adulteration act. A reporter for the *World*, who visited the firm yesterday, was told by Mr. F. B. Thurber that the report probably arose from a circumstance which he would explain. 'Comb honey,' said he, 'being a fragile substance, more or less of it arrives here in a broken condition, and in order to save it, it became necessary to pack it in some kind of a receptacle. A number of years ago another New York house, large dealers in honey, began cutting up comb honey into slices, packing it in glass jars, and filling the interstices with strained honey. It was found, however, that this soon candied or granulated to such an extent that it destroyed the clear, translucent appearance which consumers demand. In order to avoid this a quantity of dextrine or starch sirup, commonly known as glucose, was added. When our firm took hold of the honey business we put up honey in this manner, and after it was introduced in England our attention was called to the fact that a retail grocer had been summoned under the English Adulteration act for selling in glass jars as honey an article which was not wholly composed of that substance, the fact not being stated on the label. A small fine was imposed but no seizure was made. We now label all jars containing honey, stating that the space around the combs has been filled with a solution partly composed of starch sirup in order to prevent granulation. Since we began to do this there has been no trouble. The summoning of the English grocer happened about a year ago, and was published at the time in several bee journals in this country. Our last exportation has been the means of bringing this matter up again, but that shipment was pure honey in comb, in glass boxes, just as it is taken from the hives, and has met with great favor.'"

Very good, Messrs. Thurber & Co. I can not see any wrong done if you label your jars of honey in the way you mention, and people choose to buy them when thus labeled. On page 311 of *Bee-Keepers' Magazine* for 1877, appears the following:

"**THURBER'S CANDIED HONEY.**—One thousand dollars in gold coin will be paid if the honey contained in this jar is found to be impure, or in any manner adulterated. The above is on all of Messrs. Thurber & Co's. labels."

WHAT KIND OF WINTERS REQUIRE MOST HONEY?

I am having a little strife with one of my neighbor bee men, as to whether bees eat more honey in a cold, hard winter, or in a moderate, warm winter (out door wintering). Please answer this immediately, as the one of us that is wrong is to send for your bee journal one year. I was a subscriber last year, but have neglected to send this year.

JOHN NIMPHY.

Swartz Creek, Mich., Feb. 14, 1879.

I do not know that I can answer the question directly, for if the weather should be such that the bees commence breeding largely, as they did last winter, the honey con-

sumed to feed the brood, would be greater than where the winter was so cold that little or no brood was started. On the other hand, bees consume much more honey to keep up the animal heat during very severe weather, than they do when the temperature is mild. I think less honey would be consumed in an even temperature of about 40°, such as we have in the best cellars, than when it is either colder or warmer. I think you would better each pay half on GLEANINGS.

THICKNESS OF SECTIONS.

I use frames for surplus honey on your plan, but having tried different sizes, I have settled on the following, as most profitable for me, and quite as salable; in fact, often more salable. My sections contain 2 lbs. of honey, when full. I make them $5\frac{1}{2} \times 4\frac{1}{4} \times 2\frac{1}{2}$ in., thus having 6 sections in one frame, and also make $4\frac{1}{4} \times 4\frac{1}{4} \times 2\frac{1}{2}$, which contain $1\frac{1}{2}$ lbs. I cut the sections out of 3 inch plank which I have dressed on both sides, to $2\frac{3}{4}$ in. I then cut it into the length for sections, and groove it before sawing. I have tried both ways, and this seems most satisfactory.

I have a horse power which works first rate. We all owe you much for your endeavors to give your readers the benefit of your ingenuity, and it made me mad to see

JOHN DICKINSON.

Milwaukee, Wis., Feb. 2, 1879.

There is quite a difference of opinion in regard to the thickness of section boxes. I have used them as thick as you mention, but the bees sometimes get two thin combs, instead of one thick one. Muth, in his new circular, writes as follows:

"There is no doubt but that the most honey is produced in frames which are $1\frac{1}{2}$ inches apart from centre to centre; I have added $\frac{1}{4}$ inch to this width because it makes more handsome combs, and I find that it works well; but to have honey frames 2 inches or more apart from centre to centre is at the expense of the honey crop, and were it not for the separators, the bees would build three combs in every two frames.

"One of my friends argues very correctly thus: 'When the combs are so thick the cells are too deep, and it takes the bees too long to evaporate their honey before they can cap it.' I prefer to raise comb-honey without separators, for the other reason that I do not believe that the bees will build as much comb when their clusters are separated from each other, as when clustered together."

I have decided, as you perhaps know, on about 2 in., separator and all, and we rarely fail of having our sections nicely filled. I like the looks of the thick combs, when you can get the bees to build them nicely.

TWO SEPARATE COLONIES IN ONE HIVE.

Success with us, in the apiary, during the past year or season, has been about the average of your correspondents' reports; our experience about as varied as theirs; for we also have been experimenting with bees, hives, and theories. With one colony, however, we struck a "big bonanza," and "a nut for Novice to crack."

That colony stored $256\frac{1}{2}$ lbs. of honey, during the past season. We allowed no increase. Most of the honey was fine comb, taken in "connected sections," tiered 6 high. That's the "big bonanza."

In putting in starters in a section, we used some bits of comb (from a brood chamber) that contained a few eggs. We thought nothing more of it at the time, supposing that the bees would clean all up as usual. The section with starters containing eggs was placed in the middle tier. In removing them, in Sept., we found that the bees had actually reared a queen from these eggs; that she had matured, become fertilized, and laid worker eggs in nearly all of that section; that the eggs had matured into brood which were nearly all out of the cells, and the

cells were again being used by the queen for eggs when we made the discovery. Now comes the "nut to crack." Did this queen pass down through the brood chamber proper of the hive, and out to meet a drone, and back again through the dominions of the original sovereign queen of the hive, without molestation from either bees or queen?

The hive contains 10 G. frames. There were a few drones in the sections, with the queen. We would be pleased to have your opinion of this bee freak of ours.

J. C. & D. H. TWEEDY.

Linden Vale Apiary, near Smithfield, O., Dec. 2, '78.

The queen undoubtedly passed through the lower part of the hive and out to be fertilized, as the workers also did, to gather honey. Such cases are not new, as 2 colonies have several times been known to work together peaceably, in the same hive. Such, however, is not the general rule and there is always danger of one queen's being killed. The extreme height of your hive favored such an arrangement, in this case. We once had a second queen hatch in one side of a common Langstroth hive, which was allowed to live and rear brood in her own side, thus forming 2 colonies, and both using the same entrance.

THE FIRST HONEY OF THE SEASON.

I have a few questions to ask you, that I could not find answers for, in the A B C or GLEANINGS. Last Oct., I packed 5 hives of bees for winter; Nos. 1 and 2, with 6 frames of honey and 3 frames of empty comb; Nos. 3 and 4 with 4 frames of honey and 2 of comb; No. 5, with 3 frames of honey and 2 frames of comb, and all the frames were packed full of bees. As they were all in good trim for winter, I did not bother them until the first day of Feb., when I found all of them carrying in great loads of pollen. As we do not have much cold weather, after the first of Feb., I thought I would unpack them for summer. So I opened No. 5 first, lifted out one of the middle frames, and to my astonishment it was full of capped honey, except about one inch at the bottom, and that was nearly full of pollen. After lifting all 5 frames out I found them all in the same way. I then examined all of my hives, and found them all in the same fix.

Now, what I want to know is, where did all this honey come from? can bees make honey in the winter? and will it do to take out the honey, and insert empty combs in its place?

Now, Mr. Root, I will stop asking so many questions, for fear you will get mad at me.

W. S. CAUTHEN.

Pleasant Hill, S. C., Feb. 3, 1879.

Your bees are undoubtedly gathering honey, and if you track them, you can probably find the source from which they get it. The fact that they are bringing in pollen indicates that the honey is also obtained from some plant. If you can investigate the matter, and give us a report, it will be interesting to know from whence we get the first honey. Your questions are connected with a valuable report, and such we are always glad to receive. Yes; insert empty combs.

QUEEN NURSERY: HEMP FOR HONEY.

I started last spring, with 27 stocks, increased to 70, and took 2,700 lbs. of honey. I have contracted my honey for this year at 10c. per lb., the party buying to furnish the bbls. Can they be used without waxing?

I did not make a success of the queen nursery, and think I will get a lot of artificial eggs, made of tin or earthen, with an opening in them, and put the sealed queen cells in them, and set them under hens (we always have plenty of them in the hen house), or in the nursery. In this way, you see, the first queen hatched cannot destroy the rest, as they did in the nursery.

Now, I must tell you of my discovery. I will claim it, until I hear from you, and then I know I shall find out that it is an old discovery; but nevertheless, I don't recollect seeing it stated anywhere.

The best honey plant in existence (so far as I know) is the common hemp, such as we feed canary birds. Several plants came up around our door, and I never saw such a sight; they were covered from daylight until dark, every day, for weeks, with blacks, Italians, and bumble-bees. I think I will sow $\frac{1}{2}$ or $\frac{3}{4}$ of an acre this spring. Did you ever notice it?

Sandwich, Ill.

ALEX. WILDER.

Barrels can be used without waxing, but it is a little unsafe unless they are *extremely* well made.

I have noticed that the bees work on hemp, but here they get only pollen from it. One of our neighbors had $\frac{1}{2}$ acre of it.

I have never had one queen kill the others in the lamp nursery, but few times.

ROBBING: ANOTHER REMEDY.

Your account in the last No. of GLEANINGS, about bees robbing, reminds me of my last season's experience. Here it is.

One day, I had occasion to turn up a box hive, for only about 5 minutes, but that was long enough to let the robbers in, and as the stock proved to be queenless, they went at it desperately. I took a piece of cloth like a sheet, and threw it loosely over the hive; then they attacked the adjoining hives on each side (I had 15 standing in a row, about 2 ft. apart), and I began to fear there would be a general rebellion, as they seemed determined to "fight it out on that line, if it took all summer." Well, I brought into the battle such weapons as sheets, table cloths, blankets, etc., and threw them loosely over each hive that showed any commotion, and in half an hour "all was quiet on the Potomac."

While I was away from home during the fall, they had several spells of robbing, and my wife stopped them every time, by using the same remedy. Simply cover the hive up with cloth; it need not be tied tight around the hive. The main point is to cover the entrance, and in this way, there is no danger of smothering. I would say, cover both the robber hive and also those being robbed.

A. A. FRADENBURG.

Port Washington, O., Jan. 20, 1879

I hardly think this remedy would answer for severe cases; mild ones generally cease after a little, of their own accord.

QUEENS' VOICES: WHY DO THEY "TALK?"

I would give a good deal to have one of those talkative queens of Mr. Henderson's, and must have one this season, for I am deeply interested in their little voices, especially, that "zeep." I have never heard it. Mr. Langstroth, Mr. Quinby, and some others have it "peep," and say you can always hear it before swarming. There is another voice or sound, of which the bee journals speak, as "Tua—Tua," and say it is the young queens calling for food when hungry. Now, I have heard that sound very plainly, but think the call is made from a different motive. I think it indicates fear or distress. You listen at the hive, and hear the 2 queens call "Tua—Tua," and on examination, you will find them either surrounded by bees, or in a cluster or ball, the 2 being kept at bay. I have picked up a queen between my fingers, the wings being held fast, and she would sing out "Tu-Tu-Tua."

Another fact which establishes this idea, in my mind, is the following:

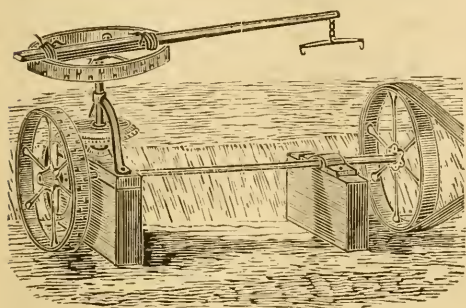
I had a very fine Italian queen that came off with a swarm. The swarm acted very strangely, settling along on the hives in little knots and bunches, and some being on the ground. I concluded that she could not fly; so I hunted for her all around, but to no purpose. Seeing by the drift of the swarm, that she had followed a row of hives. I suspected that she must be inside of some one of them, so I began to listen for this note of distress, commencing with the first hive next to her own. I kept on to the 12th or 14th, and found her calling "Tua—Tua" very mournfully. She was balled. I took her out and presented her to her swarm, which accepted her; even a good many that had gone back came out, and crawled into the new hive, for I set it on top of the old one, to see what effect it would have on those inside the old hive. Now, I think here is where the "zeep" comes in; it's a call for her bees or followers, like the old hen's cluck for her chickens. Who knows?

Santa Barbara, Cal., Jan. 28, 1879.

J. N. G.

A CONVENIENT HORSE-POWER.

THE *American Agriculturist* for Feb. gives a cut of a home-made horse-power, built from the parts of an old, worn out, Buckeye mowing machine. As something has been said of such arrangements before, in GLEANINGS, we have copied the cut.



HORSE-POWER MADE FROM AN OLD MOWING-MACHINE.

The axle, with the beveled cog-wheel, is set on end, and the latter geared to a corresponding wheel in the drive-wheel of the mower, which in turn is attached to a long shaft, as represented in the engraving. This shaft is bedded in blocks of timber, and carries a belt-wheel on its other extremity, as shown. A pole is fastened on top of the upright shaft, for the attachment of the horse. The whole apparatus is sunk in the ground beside the door of the shop, so that only the upper halves of the wheels appear above ground.

MORE ABOUT FOOT-POWER SAWS.

HAVING read your description of H. Smith's foot-power saw, I accepted an invitation from him to examine his saw, and test its working power. So, to-day, we went to work to see what we could do.

The saw is not the one illustrated in your last (Dec.) number, but the more recent invention noticed in your magazine in Nov., 1878; and, as he (Mr. Smith) says, it entirely eclipses the one mentioned in Dec. No. I have tried both, and can speak with certainty.

In your notice of it, you stated that no saw could be made to beat the Barnes foot-power saws. Now, I do not know what you can do with the Barnes saw, but if you can beat to-day's record, it must do much more than is claimed for it (8 ft. of inch stuff per minute). I am a person that has not done enough work for 12 months to keep my muscles in trim, but notwithstanding that, after a few trials, I succeeded in cutting 13 ft. 9 in., in one minute, by actual time; 12 ft. 6 in. and 13 ft. were repeatedly cut by others, in the same time. The stuff was plump inch, pine lumber. I am confident that, with the saw in the very best of trim, 16 feet could be cut per minute.

Now, if you, Mr. Barnes, or any other man can beat that, I should like to hear from him. I know that this saw will cut at the rate of 8 ft. per minute, without fatigue to the operator, and would cut sections at a very good rate.

The simplicity of this machine, combined with its superior working qualities, should recommend it to every bee-keeper, as the manufacturers inform me that it is public property.

As I am the owner of the original foot-power saw, illustrated in your magazine, I noticed that your dimensions were not correct, in every part. The 2 wheels on the counter-shaft should have been 6 and 12 in., instead of 6 and 24 in. If made as you describe, it would do well for horse-power, but would be entirely useless as a foot-power saw. Those in-

tending to make a foot-power saw would do well to notice this.

QUEEN REGISTERING CARDS AND THE WEATHER.

Could you not get up something better for registering cards? Even when put on with galvanized tacks, they get so dirty and unsightly that I am ashamed to have them about. Would not some kind of varnish, enamel, or possibly soaking in paraffine, overcome this difficulty? J. O. FACEY.

New Hamburg, Ont., Can., Jan. 1, 1879.

I am very glad, my friend, to hear of your success, but I fear others may not succeed so well, with the simple, slow motion saw, for many of nearly the same kind are now in use. I think your 8 in. saw must have been in extremely good order, and I guess, as you were simply trying what you could do, that you would not be able to do the same thing day after day. Please send us a drawing or rough sketch of the machine.

Our registering cards look very well, for a year or two, and then we tack on new ones. They are so very cheap it is not much expense. I know of nothing so absolutely proof against the weather, as the little slates.

TRIALS OF CELLAR WINTERING.

I AM in a quandary as to what to do with my bees. I kept them out on the summer stands until the severe cold weather in Dec. commenced, then took them into the cellar, and piled them up 3 and 4 tiers high. The warmth of the cellar, I suppose, made them uneasy, and they tried to get out; so I tried to fasten them in, by placing blocks with wire cloth, before the entrances, to keep them in the hives.

Some 3 weeks ago, I found a good many, on the cellar bottom, dead, and swept out several quarts. As some of the honey boards had warped so that the bees could get out, I supposed they came from those hives, and that nothing serious was the matter; but the Jan. No. coming to hand Saturday evening, and being perused, I saw that others are having trouble with their bees, which induced me to take a peep into the cellar; and, lo! the cellar bottom was completely covered with dead bees, and some were alive and crawling around. Where they all came from, I cannot tell; but they must have got out of the hives some way.

For some time after I put them in the cellar, I could hear them making almost a constant humming, night and day, as my bedroom is directly over them; but, for a week or two past, they have not made as much noise as before. The weather is yet cold, and the ground yet covered with snow, and I cannot place them where I want them to stand all summer, on account of the snow.

If I carry the hives out doors, to examine them, bees will perish, and I am afraid those fastened in the hives will die. If I open the entrances now, I should think they would come out and never find their way back. What would you advise me to do?

Galva, Ill., Feb. 3, 1879.

D. NORTON.

Make the cellar perfectly dark; if that don't do, let in cold air without light, until it drives them back into the hives; then, when warm enough, set them on summer stands. If you carry them out in the winter, and then set them back again, it will not matter where they are placed. I think out door wintering the safest, at least for an inexperienced hand.

We have received a sample of fan., made on Mrs. Dunham's new machine. The base is so thin, on the small piece sent us, as to be transparent like glass, but the walls are more than ordinarily thick. Of course, it costs more per square foot than the kind we furnish, but if it really prevents sagging, and such may be the case, it may prove of much value. I think, from experiments I have made, that the bees will work it out more slowly, but it will probably have a thorough test, as soon as it is warm enough.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POST-PAID.

MEDINA, MAR. 1, 1879.

And if ye will not for all this hearken unto me, but walk contrary unto me; then I will walk contrary unto you also in fury. Lev. 26: 27, 28.

We have 3,999 subscribers, and it is only Feb. 28th.

We have sold 85 mills for making fdn., and, so far as I can learn, every one of them is doing a good business.

THE Northeastern Bee-Keepers' Association will hold its annual convention in City Hall, Syracuse, N. Y., on the 11th, 12th and 13th of March next.

THERE, that is just my luck! The Jan. Nos. are all gone. If you will sell yours, I will give you 10c. for it. Very likely I shall have to give 20c. before the year is out.

MAPLE sugar, with $\frac{1}{4}$ flour, stirred until it grains, makes beautiful candy for bees to start brood rearing. By the use of it I verily believe a colony may be made to swarm in April.

EVERY one of our advertisers, I think strictly reliable. If you do not find them so, it is a mutual agreement that you are to report to me. Are we not all agreed on this, boys?

WE can furnish you a double edged, (18 in.), pruning saw for cutting limbs in swarming time, such as is shown on page 98, for 75c. A larger size (20 in.) for 85c. Either will be sent by mail for 15c. extra. These are the celebrated Boynton, lightning saws.

FRIEND Nellis has been considerably delayed on the first No. of the *Exchange*, but we now look for it daily. Three other bee journals are already started, or are to be started, this year. As sample copies are offered free, the public can judge of their merits without the investment of any money.

WE were very much delighted to receive two specimens of Air-Plants from Geo. Wolff, of Jacksonville, Florida. To us Northerners, who have always been accustomed to the orthodox kind of plants which draw nourishment directly from the earth, these Air-Plants are simply wonderful.

WHEN I closed the Feb. No., 12 colonies had died. To-day, Feb. 27th, 15 more are dead. All were weak colonies, in Simplicity and L. hives, with plenty of stores. None were old strong stocks, and none were in chaff hives. It is a "burning shame," nevertheless, to be writing bee books, and letting the bees die.

WE clip the following from the circular of W. F. & Jno. Barnes:

"Read what the largest honey dealers in the world say: 'Comb honey in one pound caps or boxes, measuring 4 $\frac{1}{2}$ x 4 $\frac{1}{2}$ x 2 not glassed, packed 24 in a neat crate, sell more readily and bring better prices than in any other shape. H. K. & F. B. THURBER & Co., N. Y.'"

WE have made two fdn. mills, that make the flat bottomed cells; we can make them from \$1 to \$3 cheaper than the usual kind. After a careful examination of some combs built on this kind of fdn. furnished by Mr. Nellis, I found that our bees, after all, leave the greater part of the cells flat at the bottom when the comb is worked out. With such comb, the bees cannot cluster as compactly, nor can they use the wax with as much economy, and I cannot therefore, at present, recommend them.

GREAT REDUCTION IN THE PRICE OF SECTIONS.

In consequence of lower prices on lumber, improvements in machinery, and because other folks were underselling us, we have decided to make the $\frac{3}{4}$ by 4 $\frac{1}{2}$ sections, for \$6.00 per thousand; the so called prize sections, for \$5.00 per thousand; other

sizes, in proportion. I can hardly afford to make a rebate on those I have sold this season, yet I will do so, if you think it right that I should. The prize sections are just such as Doolittle and Betzinger have sent out, unplanned. They will be planned for \$1.00 extra per thousand.

"THE BLESSED REES."

Were I desirous of making all the money possible out of my business of manufacturing bee-keepers' supplies, without regard to what became of my customers, I think I would purchase 10,000 copies of the above little book, and distribute them, gratis, to all who were getting the bee fever. I am sure they would sit up all night reading it, and then borrow money if they possibly could, to invest in bees, hives, etc. But, alas! in less than a year a wail of "blasted hopes" would come up, such as the world has never heard before, and I—should not sleep peacefully.

Is it full of truth? Yes; and that is where the trouble is. Had the author dated it on the moon, or at the north pole, our A B C class would have known how to take him; but, on the contrary, he has started out by linking himself with Prof. Cook, and the Agricultural College, in such a way that I cannot, even now, decide whether he means to claim his most incredible statements as facts, or only pure fiction. He, fresh from a couple of years' study in college, a boy of only 17, without having ever seen the inside of a bee hive, starts with 37 colonies in box hives, and obtains over \$3,500 cash for the honey produced by them the first year, besides increasing them to 97 stocks of Italians. He obtained 2,500 lbs. of box honey from maple and apple tree blossoms.

The worst feature about it is that the book is being reviewed right and left, as a truthful story. He very gravely states he has now colonies by the thousand. Why could not a writer of so much talent be satisfied with a statement frank and truthful, instead of one that will craze the brain of our youth with the idea of sudden wealth to be obtained by going into a business, already entrancing enough, even without the money to be obtained by it? To be sure, he tells how he did it, and very ingenious are the explanations. I shall be glad to send you the book, but this very caution must be pisted inside of every copy I sell. Price \$1.00 postpaid.

FEEDING IN MARCH.

Many colonies will probably require food during this month, and those who wish to forward brood rearing as fast as possible will be likely to make much better progress, if they feed in the right way. Unless you are pretty careful, you will make mischief if you undertake to feed liquid food; I would use nothing but candy.

In the spring, before pollen can be used, I would by all means use the flour candy, made as described in the A B C Part I. The point I wish to touch is about the manner of feeding. In warm weather, the candy slab in a frame is just what we want, and a single frame of candy might do no harm in cold weather in a very strong colony, but a whole slab hung in the center of a weak colony would divide the cluster like a cake of ice, and would be sure to kill them outright.

My attention was called to this by a correspondent who hung slabs of grape sugar in his hives for winter food, alternating them with frames of comb. During the past year, I have almost constantly warned our readers against depending on grape sugar for winter stores, and in our printed directions given in Nov., and sent with every box sold, I took especial pains to make the matter plain. In cold weather, the candy or sugar must be given in small lumps, placed directly over or in the cluster, so they can thoroughly warm it up, or it will be of no use to them.

Again; if you place these lumps in carelessly, so that they leave openings in the quilt, to let out the warm air, this alone will often kill a weak colony. Now if you fill a table spoon with candy, so as to make a cake that on one side and rounding on the other, you can put this over the cluster, flat side down, and have your quilt fit closely over it. This would last but a little while, so we have made a tin dish with a rounding bottom, somewhat like the spoon, and about 8 in. long. A cake of candy made on this is just right to lay over a 3 or 4 frame nucleus, and it will last them 2 or 3 weeks. After it is put in place, and the duck or burlap pressed closely over it, we cover the space above and at the sides closely with chaff and chaff cushions.

Our Homes.

We have made a covenant with death, and with hell are we at agreement; when the overflowing scourge shall pass through, it shall not come unto us; for we have made lies our refuge, and under falsehood have we hid ourselves. —Isaiah, 28: 15.

MY friends, I am aware that many will object to the subject I am about to take up, and those who have objected to my speaking so much about myself will, perhaps, object vehemently. Perhaps all such would better stop right here, and read no farther. You can cut out these two leaves, and burn them up, if they annoy you, and your bee journal will be full and complete without them. I write thus, because I know, by past experience, that it is in this way I have been most successful in reaching the hearts of those who, tempted like myself, have been led to the feet of the Savior, by these same Home Papers.

I was carefully brought up, by kind Christian parents, and until I was, perhaps, 13 or 14 years old, attended Sabbath school regularly, and enjoyed it. As nearly as I can make out, I strayed away from these things first, through reading sensational fiction. The *N. Y. Ledger*, perhaps more than any other one thing, led my thoughts in a wrong channel. I well remember the first number that came out. In my youth, I was a great reader, and read everything; I can remember hunting over everything in the house, and devouring even the spelling book and dictionary. Once when on a visit to my aunt, a neighboring woman who called in, complimented me on being so studious. My aunt expressed anxiety in regard to what it was that was read.

The woman replied, "Oh, I don't think it makes much difference what they read, so long as you keep them reading."

I was, at the time, reading a sensational novel. I am afraid too many parents think their boys of 14 years old safely employed, providing they are reading *something*, as did this woman.

From my earliest childhood, I believe I have always shown a preference for the other sex. In my plays, I generally chose girls for my mates, and I believe I was generally a favorite with them. There is nothing wrong in this, and I believe a young man who mingles freely with young women of his own age, safer, as a general thing, than one who does not.

I believe one great reason why we lack charity for each other is because our peculiar temptations are so unlike. One who is naturally truthful, who does not talk a great deal, and who has little temptation to exaggerate things, or to make large statements, would be very likely to have little patience with one who, like myself, is a great talker, and has to fight continually, against the disposition to give a very erroneous view of matters. One of us may have a besetting sin of penuriousness, and another, looking on, may wonder how it is possible that a man can be so "little and mean," just because he can not understand that the man has a

constantly besetting temptation in that direction. Of late, when I hear a man called stingy and small in deal, I always want to take his part, not because I am tempted that way, but because I am tempted in other ways, to sins so much more heinous in the sight of God, that I feel for him.

The outgrowth of my novel reading led me into a way of trifling with the other sex, of thinking it a smart thing to flatter them indiscriminately, and of studying to do it so adroitly that even those who were older and wiser than myself, were misled by me. That is a pretty hard accusation I know, and those who have no temptations of the kind will hardly know how to excuse it. At that very time, had thousands of dollars been entrusted to my care, without the owners knowing anything about how much he had given me, I think I should have had no temptation at all, to appropriate a copper of it; very likely the idea would never have entered my head, that it might have been done. We may be scrupulously honest on all points except one, and yet on that point may be as callous as the most hardened reprobate. And still be a Christian? By no means; you can not be a Christian, so long as you are willfully breaking a single one of the commandments. "Give me a clean heart, O God," is the prayer of him who is accepted of Christ, and where one is conscious of willful transgression in any one respect, you may be sure the subject of religion will be to him a distasteful one. Of course, I began about this time to find the Sunday school uninteresting, and pretty soon, religion was a piece of old fashioned superstition. I did not quite like the society of infidels at first, and when I came across Universalism, I took a strong liking to that. I wanted a kind of half way ground, where I could have freedom of thought and action. I remember having some compunctions of conscience, at different times, but in talking the matter over with some of my new associates, it was decided that "girls were expected to take care of themselves; it was their business, of course."

With such a doctrine, do you think it at all strange that sermons did me little, if any good? That the Sabbath day was distasteful, unless—why, oh! why, has it become a custom of our nation to use the Sabbath day (the holiest and most sacred time, which God has set apart when man may draw near to, and be taught of, Himself), and especially Sabbath evenings, for wicked trifling?

If there is one thing in my life that I thank God for more than another, it is that He gave me a woman for a wife, who has been not only a help-meet, but a patient, kind friend, through all my selfish and wicked life. I thank God for giving her to me, because I had little to do with the matter myself. It was a new face and her shy, diffident way, that attracted me, if anything. I was happy with her, and by her side, like all the rest of you, I presume. For several years I was a kind husband and father, but it was more because no temptation offered to be otherwise, than because of any credit on my part. I did right, simply because it

was easier and pleasanter to do right than to do wrong. Why did I not become a Christian then? Why did not the excellent sermons I heard during that period make me a Christian, rather than a skeptic and infidel? Simply because I was, all the time, in an attitude to sin, if the favorable opportunity presented itself. I had no idea of bowing humbly to any higher authority than my own will, if any sufficient temptation presented itself. During those years I attended to my own business, and let other people attend to theirs. I did not believe in meddling. I did not believe in ministers' calling on people, unless they were sent for; and if a man chose to get drunk and go down to a drunkard's grave, it was his own doing and no fault of mine. If he abused and wronged his wife and children, they must take care of themselves as best they could, as I said of the other sex, a few sentences back.

This is a very independent doctrine, my friends, but I know from experience that it is not one calculated to make a man enjoy life here on this earth. I did considerable business, and employed a good many hands, both men and women, and people considered me a valuable citizen. In fact, I was often quoted as being as good a man as any of the church members, and yet I "made no pretensions." I used to take pride in being thus compared with others.

Please bear with me, my friends, in what follows. Nothing but the thought that it may be a beacon light to warn others, would ever prompt me thus to lay bare the secrets of my inmost soul. With a prayer that it may help some one, I cast it out on the waters, and leave it in God's hands.

I well remember the day, in early winter, about 12 years ago, when the first temptation came. The bees were all nicely cared for, and there was nothing more to do until spring. How should I pass away the time? There was no need of my being idle, but for some reason, I sauntered into the room where the girls were at work making chains, as I was then manufacturing a great many silver watch chains. Up to this time, I believe, I had faithfully treated my boys and girls alike, without any partiality. Among the girls was one who had recently come. She had been for several years a school teacher, and I had been told that she had rather more than an average education. I was but little acquainted with her, because she kept steadily at her work, and seemed to have little to say to anyone. I valued education, and it was perhaps this that put it into my head to draw her out and get acquainted, and thus pass away time during the winter.

I wish to stop here, to state distinctly that the matter was premeditated, and that it did not come about unconsciously, as some urge, by way of excuse, that such things do. The minute the intention was framed, I thought, instantly, of the wrong that would be done my wife, and decided she should know nothing about it. As in the opening text, I would "make lies my refuge, and under falsehood would I hide myself."

An acquaintance was not so easily made,

and I began a little more cautiously. Her work was well and faithfully done, and I could, after a little time, advance her wages. She was promoted little by little, and, in due time, took charge of the book-keeping of the establishment, which work her education well fitted her for. This arrangement was a very wise and proper one, had the motive that brought it about been one of the right kind. In justice to myself, perhaps I should add, that I am, naturally, considerable of a teacher. I like to see children learn any handicraft, and have always felt a pleasure in seeing anybody grow and become proficient in any especial calling. To delight in seeing the boys in my employ become expert in any branch, and earn higher wages, is, to a certain extent, natural with me. When spring opened, I proposed that my new friend should learn bee culture. This she strongly objected to, but I finally succeeded in getting her interested in the work, and ere long she became quite enthusiastic in demonstrating that women could keep bees.

During all this time, I do not know that I had any definite plans in view, of doing anybody any wrong, but I was only amusing myself, by having my own way, untrammelled. My wife, although liberal and generous in the extreme, and as unsuspicious as a woman could be, could not fail to see from the outset, that her husband was losing his naturally frank, honest way. I knew it too, and, ere long, I felt it incumbent on me to take a little more pains to be cheerful at home, and finally took pains to "explain things," so as to make everything pleasant. There are a great many paths that lead to the bottomless pit, but I believe that poor humanity behaves about the same, no matter which path it takes. I had voluntarily entered the toils of Satan, and soon he began drawing his hands about me. The liberty I craved, and declared I would have, began to assume the phase of fetters. My home that my wife and I had toiled for, and had fixed and shaped with so much pains, began to be distasteful. I did not watch for her as I used to when I came home, and the thought of her smile, was no longer fondly remembered through my daily toil. Is it always so? Do married people always get over being lovers after awhile, and come down to the dull realities of every day life? So I tried to reason to the little woman who had faith in her husband still. The book-keeper too insisted that things were not right, and I "explained things" to her, and insisted that my wife was perfectly satisfied, and had made no complaint at all, which was partially true, for my wife was not one who complained very much of anything. To allay suspicion, I managed to have the two women become better acquainted and to be seen considerably in public together. I studied to make myself agreeable and pleasant to both, and imagined I had done a very commendable thing. Little things often indicate the state of the heart. I will mention one.

Shortly after this acquaintance commenced, I learned incidentally that my friend had been much interested in the

meetings that were then being held, and would probably join the church. I inwardly resolved to break this up, and when I saw her little hymn book, a few days after, with her name on it in gilt letters, I opened it as if by accident, and began turning it into ridicule. I believed in religion, too; oh, yes; but the God of nature was much more sensible than any conception of human minds. I never saw the hymn book afterward, and I never heard any more about her joining the church, although I may not, at this time, have had anything, especially, to do with it. I tell you, my friends, the God of nature seldom blocks the way of wicked men's schemes, as does the God we are told of in the Bible. Her mother died while she was a small child, and her father's death occurred while she was in my employ. He was a good, warm friend of mine, and during his illness advised his daughter to remain with me, as he felt I was a man who could be trusted. The thought of this sometimes troubled me, but whenever these thoughts came up, I stilled them by remembering that I did not believe in any hereafter, and that there was nothing to fear from men who were dead and gone. Does it make your blood run cold, dear reader, to hear me speak in this way? It made my blood run cold a great many times, to think of where I was tending, but I got steeled and hardened, as the years passed.

We studied botany, chemistry, microscopy, and kindred sciences, and read together, sometimes with my wife present, and sometimes not; oftener the latter. The God of nature was a great deal better than a God who pricks peoples' consciences, and my zeal for science was often a most convenient cloak to cover other things. I insisted on her coming to our house Sundays, that we might study bees with the microscope. We commenced reading Dickens, at such times. Dickens was our favorite author, and his clips at religion, his accounts of love to humanity, without any God or Bible in it, I used to relish hugely. One can cry over his touching delineations, and go to bed at night and sleep soundly, even though his wife's sobs, that come from a heart that is breaking, do shake the bed unpleasantly. Did no one remonstrate? Yes: my father, mother, brothers, and sisters remonstrated; community remonstrated, in the shape of talk that was going about; but all parties were so well known and respectable, it was soon dropped. I was such a *good, moral* man! and so liberal to all benevolent enterprises! I surely could be doing nothing out of the way! I remember one of my favorite topics about this time was gossips, and people who did not mind their own business. Community were thieves and liars; they would rob a man or woman of their fair name, and drag them out before the world when they were entirely innocent, and had done nothing at all—*nothing at all!*

My friends, I now thank God for gossips. People ought to talk, and I do not believe they often talk without a reason. When I feared not God, I feared public opinion; I dodged and twisted and prevaricated in a most pitiful way, when the wholesome rod

was held over me. I was not without skill, however. I fortified myself for the approach of ministers and good people, and I could talk religion, when I chose, in a way that humbugged more than one of my good friends. Satan gave me a sort of brazen impudence that had a very fair semblance of the real coin, and I learned to look a man in the eye, with perfect coolness, and declare I knew of no duty on earth I had left unperformed. I had said this, and that I had no belief in a hereafter, so much, that I came, in one sense, honestly to believe it. I was an honest skeptic.

One rainy Sunday, I was obliged to ride all day long in a caboose car; in looking for books, I found only a patent medicine almanac and a Bible. I first read one, and then the other. I tried honestly to find something in the Bible that was sense, because my mother had talked to me so much about it. I read every word of the almanac, but I could not find a word of sense in the Bible. It was dumb to me, like Christ before Pilate.

Was I happy? Well, yes; at times, I was happy enough; but there were times when remorse made a hell here on earth that no human pen will ever succeed in picturing. I have counted the slow minutes, as I groaned in agony. Then why not turn back, and commence to do right? Ah! yes; why not? That is just what I proposed to do; but I soon found, to my sorrow, that Satan has a purpose in all his work. The liberty of thought and action that he so entrancingly holds out, proves soon to be the veriest slavery that ever humanity saw. Over and over again I declared I would be honest and truthful, and that I would from that moment turn over a new leaf, and do right. Every good resolution was followed sooner or later, by a humiliating downfall. I will give you one instance. One Sunday, when writhing under the stings of conscience, I went out into the woods. I sat down and meditated on the life I was wasting. I rose, and raising my right hand, called on God to witness—I didn't believe in any God, but no matter—I called on God to witness, that I, henceforth and forever, would be an honest man, and a true husband to my wife and father to my children. I would commence that minute; and I do not know that I was ever more earnest or honest, in my life. I went straight home, to put my resolution in practice. As I neared the house, a voice caught my ear; and through the open door, I caught a momentary glimpse of a summer dress, and a foot that a careless attitude, during the warm summer weather, had revealed. A trifling thing; a very trifling thing. I turned quickly and walked into the garden. I went out behind the honey house and sat down. Satan stood over me. Oh! my God, help a poor frail mortal. But I did not know any God; I had often declared there was none. I was alone with Satan. "You will break away from me, will you? Let's see you *do it*." I did not believe in any devil then, either. I only believed in evil impulses. I told Evil Impulses, I would follow where he led, and I do not know but that I told him I would never try to get

away any more. I went in as if nothing had happened, and the two women never dreamed of the battle that had just been fought and lost. In the evening, I walked home with her; she had come down only because I had almost insisted, the day before, that she should come. My friends, I wish to be clearly understood in this matter. I have not come before you with a confession of crime, and that I may be clearly understood, I will speak plainly.

At no time in those eight years, at no time in our lives, for that matter, was there ever a familiarity that permitted me to give her a kiss. When I attempted such a liberty, she kindly but firmly said, the minute such a thing were permitted I should lose respect for myself and herself too, and she was right. My guilt consisted in trampling under foot the laws that God has implanted in the soul of every man and woman, and it is of this, and this only I am speaking; will you please bear it in mind, through all I have to say.

I had bought out my former partner, and some money left her by her father was put in my care, and she had become a partner in the business. This arrangement, although a singular one, was commented on but little, by our citizens, because, as I have said before, of the good standing of us both. My father and mother were persuaded it was all right. One brother wrote a kind letter to us in remonstrance, and my wife answered it herself, assuring him that her husband had never wronged her in *thought or deed*. I sealed the letter up and sent it, and did better for a couple of *weeks*, perhaps. Another brother who was not quite so soft in his way of doing things, wrote that my "infatuation" was remarked by everybody. I shall have cause to refer to this again, for I never forgave that word which he used, and there was a permanent estrangement between us. A sister of nearly my own age advised harsh measures in no very mild terms, and finally ended by thinking that no power on earth would ever make me any different, anyway. A sister who was an earnest Christian came and talked with me long and earnestly, and without making any charge that admitted of a denial, left me to decide with my own conscience, whether I was guilty even in thought or not. She also talked to me of a Savior who gave strength to the weak, in a way that set me to thinking.

The girl herself, protested many times, declaring it was not right, and that she was going away. I urged her to stay, however, persuading her, by ingenious reasoning, that her promptings of conscience were groundless; when I insisted one day that I could not consent to her going away, she replied that I would get along very well.

Said I, "I could get along very well without the use of my right hand, if I were compelled to."

"But you could spare me a great deal better than your right hand."

I was the slave of "Evil Impulses" mind you, and without hesitation I raised my right arm, and said, "If the choice were given me this moment, to give up you or my right arm, I should let the right arm go without hesitating an instant."

My friends, there is something in the Bible about giving up one's right hand for the cause of Christ, but I had proposed bartering mine to the Devil whom I was serving. God heard me, and took me at my word; or at least sufficiently so, it would seem, to have made me pause and tremble. In a few weeks a dull pain commenced in that right arm. Pretty soon I was obliged to lay down my tools, and finally my pen, with which I wrote to you on bee culture.

Dear reader, that dull pain is in my right arm now, and I am using my left hand to work my type-writer, as I have almost every day since I pronounced that curse upon myself. I have grown familiar with it, and although I do not feel it much when at work out of doors, it is always there, to remind me of my sin. God has forgiven me for those years of wickedness, but like the mark that was put on Cain, I presume it will go with me to the day of my death, as a reminder and warning.

I know there are many who will say, I have gone clear crazy here; it may be some good Christians will take this ground.

I was frightened after I had made the rash speech, and I well remember thinking how I would feel if I should be taken at my word. My right arm was perfectly well and strong then, but before *this speech*, I believe, I was more sensitive to the effects of cold in my right foot and ear than in my left, and was in the habit of working with my right side turned to the stove. I mention this because I wish to have everything stated fairly. Fits of anger are very aggravating to this species of partial paralysis, as the physicians pronounced it, and it may be that the fierce quarrels we had almost incessantly, about this time, were quite instrumental in crippling my arm.

Almost the first oath I ever uttered was in quarrels with my partner. Once, in a fit of passion, I used all I had ever heard, and would have used more, if I had known them. Do you wonder that I am vehement in rebuking profane swearing?

She told me that I would be a murderer, if I kept on. Read the criminal reports, and the startling accounts of crime that are seen in our dailies almost constantly, if you wish to know how Satan winds up, when he has got his victims fully in his power, in the way I have tried to describe. What is, at first, only trifling, apparently harmless and innocent, develops gradually all the viler passions of humanity, and the result is, not only paralysis and insanity, but murder, suicide, often both together, and a grave that is, to me, more terrible than that of the drunken inebriate.

The belief, that God afflicted me for that single rash speech, may be a delusion, but had my faith then been such as it is now, that God hears and remembers every wicked word, I and the innocent ones about me, would have been saved years of suffering. Will such a faith *harm* humanity?

To the kind friends whose feelings may have been pained and jarred at what they deem almost an insane fanaticism of mine, in writing as I have above, I would say, suspend judgment for a little time, and fear not the issue. God will take care of me; He will take care of Gleanings, and He will take care of the Home Papers.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Nineteenth Edition Circular and Price List found in Apr. No., Vol. VII., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of postage required.

Canada postage on merchandise is limited to 8½ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C.	
	Part First.....	\$ 10
	Bass wood trees for planting. For prices see Price List.....	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey.....	2 50
	" waxed and painted.....	3 50
	Bees, per colony, from \$7 to \$16, for particulars see price list.....	
10	Bee-Hunting box, with printed instructions	25 0
0	Binder, Emerson's, for GLEANINGS.....	50, 60, 75
10	Blocks, iron, for metal cornered frame making.....	15
	One of the above is given free with every 100 frames, or 1000 corners.	
10	Burlap for covering bees. 40 in. wide, per yd	10
	Buzz-Saw, foot-power, complete; circular with cuts free on application. Two saws and two gauges included.....	35 00
0	Buzz-Saws, extra, 85c. to \$3.50. See price list.	
	The above are all filed, and set, and mailed any where	
60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included.....	5 00
	The same for 7 and 8 in. saws (not mailable)	7 00
3	Cages for queens, wood and wire cloth, provisioned. See price list.....	10
30	" " " per doz.....	1 00
20	Candy for bees, can be fed at any season, per lb.....	15
0	Cards, queen registering, per doz.....	06
0	" " " per 100.....	40
60	Chaff cushions for wintering (see Nov. No. for 1877).....	30
9	" " without the chaff.....	15
40	Chaff cushion division boards.....	20
2	Cheese cloth, for strainers, per yard.....	10
10	Clasps for transferring, package of 100.....	25
	Climbers for Bee-Hunting.....	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles.....	1 50
	Comb Foundation Machines complete \$22 to 100	00
20	Corners, metal, per 100.....	50
20	" " top only, per 100.....	60
15	" " bottom, per 100.....	40
	On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.	
	Corners, Machinery complete for making \$250	00
12	Duck, per yd.....	20
15	Enameled cloth, the best thing for covering frames. Bees seldom bite and propolize it. Per yard, 45 inches wide, 25c. By the piece, (12 yards).....	22
	Extractors, according to size of frame, \$6 50 to 10 00.....	
	" inside and gearing, including honey-gate.....	5 00
	" Hoops to go around the top.....	50
	" " per doz.....	5 00
5	Feeder, Simplicity, (see price list) 1 pint.....	05
7	Feeders, 1 quart, tin.....	10
4	The same, half size.....	05
25	The same, 6 qts. to be used in upper story	50
2	Files for small circular rip saws, new and valuable, 20c; per doz. by express.....	2 00
	" The same, large size, double above prices.....	
1	" 3 cornered, for cross-cut saws, 10c; doz	1 00
5	Frames with sample Rabbit and Clasps...	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet).....	20
25	Gates for Extractors tinned for soldering...	50
50	Gearing for Extractor with supporting arm	1 25
0	GLEANINGS, Vol's I and II, each.....	75
0	" Vol's IV and V, each.....	1 00
0	" Vol. III, second-hand.....	2 00
0	" first five neatly bound in one.....	5 00
0	" " unbound.....	4 00

	Hives from 50c to \$6 25; for particulars see price list.....	
0	Honey Knives, straight or curved blade.....	1 00
	" " ½ doz.....	5 00
	" " ½ doz by Express.....	4 75
	Labels for honey, from 25 to 50c per 100; for particulars see price list.....	
	Lamp Nursery, for hatching queen cells as built.....	5 90
0	Larve, for queen rearing, from June to Sept.....	25
15	Leather for smoker bellows, per side.....	50
0	Lithograph of the Hexagonal Apiary.....	25
0	Magnifying Glass, Pocket.....	50
0	" Double lens, brass on three feet.....	1 00
0	Medley of Bee-Keeper's Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0	Prepared objects for above, such as bees' wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard.....	10
10	Opera Glasses for Bee-Hunting.....	5 00
18	Paraffine, for waxing barrels, per lb.....	25
0	Photo of House Apiary and improvements	25
60	Pump, Fountain, or Swarm Arrester.....	8 50
0	Queens, 25c to \$6 00. See price list.....	
1	Rabbits, Metal, per foot.....	02
0	Salicylic acid, for foul brood, per oz.....	50
10	Saw Set for Circular Saws.....	75
0	Screw Drivers, all metal (and wrench combined) 4½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws.....	
0	Scissors, for clipping queen's wings.....	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each.....	05
	Section Honey box, a sample with strip of fdn, and printed instructions.....	05
	Section boxes in the flat by the quantity, \$6 00 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive, see price list	10
18	Seed, Alsike Clover, raised near us, per lb.....	22
0	" Catnip, good seed, per oz. 10c; per lb.....	1 00
18	" Chinese Mustard, per oz.....	15
0	" Mellilot, or Sweet Clover, per lb.....	35
18	" White Dutch Clover, per lb.....	35
0	" Motherwort, per oz. 20c; per lb.....	2 00
18	" Mignonette, per lb. (20c per oz).....	1 40
0	" Simpson Honey Plant, per package	05
18	" " per oz.....	50
0	" Silver Hull Buckwheat, per lb.....	75
0	" " peck, by Express.....	50
18	" Common " per peck.....	75
0	" Summer Rape. Sow in June and July, per lb.....	15
	A small package of any of the above seeds will be sent for 5 cents.	
5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions.....	10
	Shipping Cases for 48 section frames of honey.....	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c.....	
1	Slate tablets to hang on hives.....	01
5	Smoker, Quinby's (to Canada 15c extra) 50 & 175	1 75
0	" Doolittle's, to be held in the mouth	25
25	" Bingham's..... \$1 00; 1 50;	1 75
	" OUR OWN, see illustration in price list.....	75
2	Tacks, tinned, per paper, (two sizes).....	10
5	Thermometers.....	40
0	Veils, Bee, with face of Brussels net, (silk)	75
0	The same, all of grenadine (almost as good)	50
	Veils, material for, Grenadine, much stronger than tarlatan, 21 inches in width, per yard.....	20
	Brussels Net, for face of veil, 20 inches in width, per yard.....	1 50
	Wax Extractor.....	3 50
	Copper bottomed boiler for above.....	1 50
5	Wire cloth, for Extractors, tinned, per square foot.....	10
2	Wire cloth, for queen cages.....	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively.....	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot.....	05
	All goods delivered on board the cars here at prices named.	
	A. I. ROOT, Medina, Ohio.	

Hives and Section Boxes.

Materials for Langstroth Hives, with 9 Frames and 6 Cases for Sections, in the flat.....	\$1 00
Sample Hive, in the flat.....	1 25
Dovetailed Section Boxes, any size under 6x6 in. in lots of 500.....	3 50
" " 1,000.....	6 50
Prize Boxes ready to nail at same prices. Send for Circular and Price-List. W. D. PARKER, Manufacturer, Defiance, Ohio.	
	4d

BOOKS for BEE-KEEPERS and OTHERS.

Any of these books will be forwarded by mail, *post-paid*, on receipt of price.

In buying books, as every thing else, we are liable to disappointment, if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage, shall not be disappointed, and therefore, I am going to try to prevent it by mentioning all the faults so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve, I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type and much space between the lines, ‡; foreign, §.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

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DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VII.

APRIL 1, 1879.

No. 4.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.

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SCRAPS AND SKETCHES. NO. 4.

MY CHIP BASKET.

PUNNING a foot-power saw, when the saw is dull, or the machinery needs oiling, is a loss of time, temper, and treading.

WHERE TO KEEP FUEL FOR SMOKERS.

Let me suggest the putting of another drawer under friend Valentine's queen stand, described on page 253, Vol. VI, of GLEANINGS, to hold fuel for the smoker, and a piece of thick cloth with which to handle the top of the smoker when it is hot.

LAMP NURSERY FOR BREAD MAKING.

Here is a "chip" that will interest the ladies. The lamp nursery is a splendid place in which to raise yeast. Make the yeast in the evening, leave it in the nursery all night, and you can stir up the "sponge" early in the morning, and get your bread all baked before dinner.

HOME MADE QUEEN CARDS.

Mrs. H. made me some queen registering cards out of a paper flour sack. She did the "printing" with her pen, and it took her only two evenings to make a hundred. Of course, she saved only 50c., but that is enough to pay for GLEANINGS for six months.

FUEL FOR SMOKER.

Dry, rotten, elm wood takes fire very easily, and never goes out in the smoker; I think rotten basswood burns longer than elm, but corn cobs will out last either. If you have any difficulty in getting cobs to burn, put them in an old pan and dry them in the oven, and your trouble will vanish like smoke.

CUTTING 2 INCH STUFF BY FOOT-POWER.

When you are cutting up 2 inch stuff with your foot-power saw, as section boxes for instance, set your table so that the saw will cut half way through the work, then lower the table so that the saw will finish the work, and run it through again. You can do the work quicker, and a great deal easier. The saw must cut true, or there will be a little jog in the middle of the stuff.

BEE VEILS.

If you must have a bee veil, buy $\frac{1}{2}$ yard of black tarlatan, or, what is better, $1\frac{1}{4}$ yards of grenadine; get your mother, sister, wife, or sweetheart to make it into a veil by sewing two of the edges together—thus making a sort of bag without a bottom—hemming it around the bottom, and putting a "pucker-string" around the top. You can slip this over your hat, tuck the bottom inside your shirt collar, and you are ready for "bees-iness."

CONVENIENT HIVES.

When you have only a few bees, and your hives are new, you may get along very well with a complicated hive; but, as your bees increase in numbers, you will find that the management of a large apiary is somewhat different from that of a small one. You will sometimes be hurried, yes, fairly driven with work, and would welcome with delight any quicker method of management. Then you will discover that a complicated hive, with the frames and "rigging" all stuck up with propolis, is about the meanest thing that was ever invented.

TAKING A BEE JOURNAL.

"Good morning, Mr. Beekeeper; wouldn't you like to subscribe for a good bee paper?"

"No, I guess not; can't afford it; a good many of my swarms went to the woods last summer, and the rest of them may die this winter; if they do, I shan't want any bee paper, so I guess I'll wait and see how they come out."

"But, say, hold on Mr. H.; don't be in a hurry; I want to talk with you a little; you seem to be pretty lucky with bees—how do you prevent swarms from going to the woods? and how do you keep your bees from freezing during the winter?"

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

Thanks for your valuable hints, friend H. Your last point is one I have often had cause to notice this spring. Quite a number have sent in orders for goods, saying they were too poor to take a bee journal. Many times they have told how badly they wanted one, but that it was out of the question. These good friends have almost invariably ordered something with their money that was out of date, or superseded, and they almost always send more money than required, because the goods have declined in price; to be sure, the amount is placed to their credit, but their goods have gone and they are obliged to send again, and pay an additional express bill, which is almost always more than the price of the journal. You may think I have a selfish motive in it, but I cannot help saying, before you pay out a single cent for supplies or anything else for the apiary, take a bee journal. You may be able to get along without everything else, but you cannot get along without that, if you are going to keep bees. In the matter of keeping you posted on prices alone, it will pay you.

CHAFF HIVES, ETC.

IN Feb. No., you ask for reports in regard to chaff packing; therefore I will give you mine. I went into winter quarters with 63 full stocks, and 3 nuclei; 2 of the nuclei were on 4 frames, and 1 on 2 frames; all were on their summer stands, and packed in chaff, in various ways. Some were packed inside the hive and some on the outside; a few had nothing but cushions on top of the frames. Twenty-two are in L. hives, 2 in chaff hives, and the balance are in hives 2 ft. long by 13 in. wide, with the frames hanging the short way.

For those packed inside, I made chaff cushion division boards, by making frames of lath $1\frac{1}{2}$ in. wide. On each side of these I tacked Indian head muslin, and filled them with wheat chaff, then laid them on a board with another board on top, and pressed them flat and smooth. This makes what I call a No. 1 division board for wintering. These I set close up to the bees, and filled the space between them and

the sides of the hive, with loose chaff.

For those packed outside, I made a rough box and filled the space between the hive and box, with chaff. All had cushions on top of the frames. I have not lost one yet, and we have had a severe winter for this country. The thermometer ranged from 12° to 22° below zero, for 4 weeks. My bees did not fly from Nov. 28th, until Jan. 21st.

Some of those packed on the outside lost a good many bees; frost and ice would accumulate on the inside of the hive, and through the day it would melt, run down, and freeze on the bottom board, and close up the entrance. I had to watch them very closely, and had to bore holes in some of the hives to give them air, the entrance being frozen up.

Those packed inside had no ice in them, but were always nice and dry, and lost very few bees. Those in the chaff hives lost less bees, according to the size of the stocks, than any I have.

I think chaff packing is a perfect success, and I have learned just how it must be done. Packing on the outside is just as you say, like hanging the bed quilts over the top of the bed posts on a cold night. I have no more fears about wintering bees, if I can get plenty of dry wheat chaff.

I consider the chaff hive ahead of anything I ever heard of, both for summer and winter. It is not very expensive, and most any one can make them, and it saves a good deal of fussing in the fall; as they are all ready packed, there is nothing to do but to take the surplus arrangements out, and put the chaff cushions on.

I am making all chaff hives this winter. Not having a 50 horse power engine, saws, planers, &c., I go to the lumber yard and buy $\frac{3}{4}$ ceiling, which costs \$20 per M. For the corner posts and rim I get barn boards at the same price. Instead of sawing the corner posts, I dress two pieces and nail them together. The ceiling costs more than rough lumber, but it saves machinery and labor, and it makes a good hive and a nice one. When they are finished up and painted, they look real "snipitous."

If I had only one stock of bees, I would have it in a chaff hive as soon as I could get it there. Bees in these hives don't hang out so much in hot weather, and I don't think combs will ever melt down in them, even if they do stand in the sun.

I am also done with black bees. My Italians, or rather hybrids, did twice as well as the blacks last season. My best hybrid stock gave me 3 swarms and 190 lbs. of honey in sections, while my best black one only gave 65 lbs. of honey and no swarm. That is too much difference with equal chances. This season I am going to try some of Oatman's queens—the ones that make a feller's pockets jingle—and Italianize my entire apiary.

Now, friend Novice, if you can find a corner in GLEANINGS you may publish this for the benefit of our A B C class, as I consider myself one of them. I want to try and keep somewhere in sight of that one that grows so fast, and not let him get too far ahead. I will not bother you with questions, for I generally go to the bee books and journals, with them. M. M. STOVER.

Table Rock, Neb., Feb. 12, 1879.

PROPOLIS AND HOW THE BEE UNLOADS IT.

ON page 34, A B C Part 1st, you mention the pranks of the young bees when they bring in their first loads of pollen. You should have gone a little farther and explained how they unload it, and as propolis is also carried on their hind legs in their baskets, how they get rid of that too.

I have heard it remarked that their manner of depositing pollen is to thrust their extremities to which it is attached into the cell, and push it off from the one with the other, and pack it in. Since propolis is never stored in cells as pollen, the manner in which they get rid of that may also be of interest to many who have never witnessed the interior workings of the inmates of a bee hive.

I have observed, through glass, their pranks and jostlings when they had entered the hive with their loads of propolis, and never had an idea that they cut up those manoeuvres because they were proud of what they had done, but to attract the attention of the other bees to assist them in getting rid of their burden.

Propolis being a tenacious substance, I very much doubt if the bee that gathers it ever rids itself of it; at least, I have never as yet been able to discover it.

When a bee enters with its load, and gets up among its fellows, a jostling, whirling, or shaking is seen; some of the bees nearest to it seem to understand for what it is done, take notice of the actor, follow it up, and when it gets a little more reconciled, one, and then another, will take off a bit with their mandibles, and carry it to where they use it, and apply it to sealing up cracks, and working it over rough surfaces.

I have often thought if bees would not fuss and spend so much time working with this disagreeable stuff, but instead, devote the same time to other more necessary duties in the hive, they would be a better source of revenue to the keeper. Therefore bee-keepers making hives and fixtures should guard against offering too much temptation to bees, to have them do so much unnecessary work. The smoother the interior of the hives and surplus receptacles, the less time will be wasted.

Query: I wonder if the bees will not be inquisitive and examine your new wooden cover made of strips, and try to improve on it by closing up the narrow spaces between the strips, where the twine crosses? You know the instinct of the bee leads it to close up all such apertures where they cannot pass through, and then if they should behave so badly, probably they would keep it up, and every time you had occasion to roll it up and mar their work, they will be likely to repeat it.

G. J. FLANSEBURGH.

Bethlehem Centre, N. Y., March 10, 1879.

Under the head of POLLEN, you will find I do go a little farther, friend F. I have no doubt but that the bees will close up the cracks in the mats with propolis, but I do not think this is going to mar their utility much, after all. If they close the hive so that not a bee can even push his head out, and at the same time admit of contracting the hive to 2 frames, if need be, they will be ahead of anything we have yet had for the purpose.

CALIFORNIA.

DOES it occur to you, while shivering with the cold of early February, that there are bees at work gathering honey in the United States? We, in southern California, have not escaped the cold weather, and I do not think we feel it any less than you do, for our blood gets thin, and when the thermometer gets down to 27° of a morning, and we see a bit of ice $\frac{1}{2}$ to $\frac{1}{4}$ inch thick, we feel the cold. Our first rains came the last week in Dec., and to date, we have had only $\frac{5}{8}$ in. All anxiously watch for rain now, for unless we get more soon, the season will prove a failure.

The first honey brought into my apiary came ten days ago from manzanita. That shrub is now in full bloom, and furnishes large quantities. Stocks are growing strong very fast—so fast that I shall look for swarms in a week. I had occasion to transfer several stocks this week, and found from 5 to 7 frames of brood in each hive.

The first section boxes were put in on the 16th, more for experiment than anything else; but, to-day, the bees are building comb and storing honey in them. The season is 4 or 5 weeks late, and we are very anxious to go through the brood chamber on our annual hunt for drone comb to cut out, but dare not touch them without more rain for fear of starving next fall. With 3 or 4 inches more of rain, we would be reasonably sure of a good year. Last winter we had heavy rains and very good crops of honey.

I began a year ago with 200 stands, increased to 475, made 21,000 lbs. of comb honey, and 15,000 lbs. of extracted; but our profits go to pay freight to get the honey to America or somewhere else in the world.

Heavy shipments were made last fall to Germany and England. If these ventures prove satisfactory, it will be the means of turning our attention almost exclusively to the extractor. I now have 200 two story hives, with full sets of combs built ready for the extractor, all filled last year.

After disposing of a portion of my apiary, I begin this spring with 290 stocks; shall increase just as little as possible and make what honey can be had. The great trouble now is to avoid increasing our

apiaries. Every one has bees enough. You can hardly sell an apiary for as much as it would cost to buy as many new, empty hives. A new, 2 story, extracting hive is now offered in the flat at \$1.00 each, which price has changed the minds of some who contemplated putting swarms into boxes to be brimstoned next fall.

Many of us packed our section boxes last fall in cases with slides to show the honey, putting only about 30 lbs. in a case. This has proved a great mistake, on account of the additional freight we have to pay. We will have to hold on to the old 4 box case of 60 lbs. of honey, the tare of which is only 7 lbs., so that the freight shall not take the honey.

When can you send off imported queens? What is the express charge to San Diego?

G. F. MERRIAM.

San Luis Rey, Cal., Feb. 20, 1879.

We can send imported queens now, if you wish, friend M. The express charge to San Diego, Cal., is 95c. Four or five queens can be sent in one package, as cheaply as one.

TOWNLEY, AND CHAFF HIVES IN THE PAST WINTER.

ALSO HIS OPINION OF MY LOSSES.

ACCORDING to GLEANINGS for March, you have lost 27 stocks of bees. Could not every one of those stocks have been saved, if they had been well protected on all sides with chaff, and with a division board, the hive being contracted to suit the size of the swarm? And, if saved, would they not now have been worth more than enough to pay for chaff-hives for every unprotected stock you undertook to winter?

Friend Root, why will you persist in trying to winter bees without protection, when you *know* that in a severe winter they are liable to be lost, and that good protection will save them?

March 3d, bees here had a good fly for the first time since Nov. I commenced the winter with 85 stocks in my home apiary, and 37 in the apiary 3 miles from home, all in chaff. All are alive now—not a stock missing, and, with the exception of perhaps half a dozen colonies, there is no perceptible loss of bees. Young bees were flying from many of the hives to-day, March 6th. I can see nothing but carelessness on my part that will cause the loss of a colony now.

J. H. TOWNLEY.

Tompkins, Mich., March 6, 1879.

If not right, friend T., you are pretty nearly right. Instead of 27 colonies, we have lost 40, out of 161, and but one of the whole number was in the chaff hives; that one was very weak, and not properly protected. I have no doubt but that 50 more chaff hives in my apiary would have saved more in bees than the cost of the hives. There are two other points to be noticed. The bees that died so badly had been used for queen rearing, and were united so late in the fall, that they had no opportunity to get into good shape as were those in the chaff hives which had been used for box honey, and had not, as a general thing, been divided. The other point is that they were not, as a general thing, as strong as those in the chaff hives. Many imported queens were wintered in Simplicity hives, but they were doubled up very strong, and fed in the fall. The hives that were fed, in order to get them to fill sections late in the fall, were the very best of any in the spring. One colony in the house apiary was found dead, which seemed in perfect order in every respect; sealed honey was in all the combs, and there were plenty of bees. An exceedingly powerful colony out doors in an American hive which I had purchased late in the fall, was also dead. The hive contained more than 50 lbs. of sealed clover honey, when they

were found dead. I think it very likely that powerful colonies in chaff hives, fed bountifully until late in the fall, would never die. If the queen died, there would be bees enough left to rear another, if they were given a chance in the spring. Next winter, I will try and have my apiary composed of only such, and I wish you, friend Townley, would remind me to turn to this page about next Nov. If you will do so, I will send you GLEANINGS for 1880.

SIDESTORING SECTIONS, INTRODUCING QUEENS, ETC.

LAST spring I had 13 colonies of bees, have now 23, and made 800 lbs. of comb honey in section boxes, mostly by side storing. I find that my bees build straighter combs in side sections, than on top, without separators. I also find that bees are more apt to build straight combs in narrow top sections than in wide ones.

I packed and sent some honey, by freight, to Baltimore, which was received sound. The first lot net me 13c per pound which is low for comb honey, but we must remember that almost everything is low in price at this time.

As favorable reports of side storing are so rare, I immediately wrote friend Larkin for further particulars, which he gives below.

My section boxes are of two sizes; one is 5x6 in., and 6 sections, arranged 3 in length, and 2 in height, constitute one row, and come up level with the tops of the frames. I had in some hives 36, and in some 42, and even more according to the strength of the colony, etc.

My other size of sections, was made to fit inside of broad frames, of the same size as the other frames. The sections were made of pine and nailed together; the tops and bottoms are $\frac{1}{4}$ by $1\frac{1}{2}$, the ends, $\frac{1}{4}$ by 2. I put my section boxes on each side of the larvæ department with a tin separator between. Some hung in frames, as described above (6 in a frame), and some were placed on the bottom board, without frames, and generally without separators, except between the first row and the brood frames.

Most of my swarms, I put into two story Simplicity hives made from your directions in GLEANINGS. In those, I made surplus honey in sections on top; some made 36 sections, averaging about $1\frac{1}{2}$ lbs. to the section, and 8 to 10 lbs. to the frame. I have one frame that weighs 10 pounds.

The honey built on top was very nice and white, but the sections in the side storing hives were built straighter than those on top. For top storing sections, I think the top and bottom pieces should not be more than $1\frac{1}{2}$ in. wide.

You will perceive that I had only new swarms in the two story hives; therefore I had not a fair chance to test top and side storing. I will have a better chance this year, if nothing happens to prevent.

I have 10 pure Italian colonies, and the balance are hybrids. They carried considerable honey from red clover. I have purchased 4 dollar queens, and one warranted queen, and all of them proved pure.

Before closing, I must tell you

HOW I INTRODUCE MY QUEENS.

I received them about noon. I opened the hive in which I wished to place a new queen, caught and destroyed the old one, parted the frames, placed the cage containing the new queen between, and closed them so as to hold the cage from falling to the bottom of the hive, closed the hive, and went to my work. At sun set, I went to the hive and smoked the bees well, with tobacco smoke, and turned the new queen loose. So far, I have been very successful. I know you will say, it is a cruel way of introducing, but it certainly answers and the bees are all right by morning. Of course, in a few days I look to see that she is all right.

JOHN S. LARKIN.

Lander, Md., Jan. 6, 1879.

My bees have wintered well in the Simplicity hives; I have only lost 2 out of 23. The bees have been bringing in pollen for 2 days, from elm and maple. Mercury is 75° in the shade at noon: how is that for "high"? I have not had to feed any.

Jonesboro, Ill., March 8, 1879. W. J. WILLARD.

COMMON SENSE APIARY.

SHADE FOR HIVES.

I NOTICE that in almost every No. of GLEANINGS some mention is made of the necessity of shading bees. I believe all agree that some shade is absolutely necessary. The shade of large trees is positively detrimental, as experience has taught me. To cover with loose boards is expensive and troublesome, and the shade inadequate. I settled the difficulty, as some others of your readers can, who do not own the premises which they occupy. For them, as for me heretofore, the propriety of setting out grapevines and trees for shade might be questioned, in view of the natural uncertainty of their tenures. I prepared stakes 5 ft. in length, which were firmly driven into the ground, 2 feet apart, on the south side of each hive. To these stakes, pieces of lath were nailed, one at the top and two below, at equal distances apart. In front of these, were planted either lima beans or tomatoes, and sometimes corn. As they grew up, the young plants were firmly twined around and between the lath, and being planted early in the season, afforded an excellent shade. The land was thus utilized, and a splendid crop of vegetables gathered therefrom. The cultivating was done early in the morning or at dusk, without the least trouble or annoyance from the bees. The lath will cut to best advantage (being 1 ft. long), if your stakes are set at a distance of 2 ft. apart.

For 3 years I have followed the practice of thus shading my hives, with satisfactory and profitable results.

FEEDERS.

Without aiming to boast, I feel like affirming that I have perfected the feeder of all bee feeders. As described in Oct. No. of GLEANINGS, it consisted of a frame to suit the hive, made of ordinary lath. To each side of this was firmly and tightly nailed a sheet of tin reaching to within an inch or so of the top bar. Into this, the feed is poured, and from it, while hanging as an ordinary frame in the hive, the bees take the food. Of course, a "float" of cork or wood, about the size of the feeder bottom, must be made to float within upon the liquid sweet, and descending with it (as the bees sip the same), to prevent the little chaps from drowning.

About a year ago, I fed many gallons of syrup and honey with feeders made after the above description. As improved, it has a sheet of tin tacked to the under side of the top bar, and extending nearly to the bottom, through the center of the body of "feed." Floats half the width of those mentioned above should be used. Thus made the bees do not attach bits of comb to the top bar, as they sometimes do when the dividing tin is absent. Such feeders are extremely convenient to handle, occupying but little more space than an ordinary frame, are readily filled, can be made cheaply, and are capable of holding nearly 1 gal. of which advantages, the latter is sometimes no small item.

AIDS FOR TRANSFERRING.

With quite an experience in transferring bees, it may interest your readers to know what I consider the *sine qua non* in expediting that little operation. I refer to small sticks split from straight grained board, and $\frac{1}{2}$ inch taller than my frame. These should be previously prepared with very small wires wound around each end, and cut off 2 inches from the same.

Place from one to three of these sticks under the frame, lay on the comb, and place a plain stick or sticks opposite the wired ones. One motion of the hand, and they are fastened at top, and again, at the bottom. My apiary will number about 100 hives with which to commence next season's operations.

W. G. PHELPS, D. D. S.

Galena, Md., March 5, 1879.

Your idea of using these garden plants for shading the hives is excellent, if the owner will only keep them in neat trim, but there is where the trouble comes; so few of you will take the care and pains to keep everything absolutely neat and tidy, both inside and outside of the hives, at all times.

One of the objections I was going to raise to your feeder was that the bees would build a comb in it, but your tin partition fixes this

very well. Now your floats, when they get to the bottom, will often stick, and when you fill up you will drown your bees. You are obliged to open the hive to use or fill the feeder, which seems to me quite objectionable when we have a large number of hives. Suppose you make the feeder in the front end board of the hive, then it would always be in place. Your transferring sticks are a very old device, but for all that, they are many times quite convenient.

FRIEND WILKIN AND HIS VISIT TO THE OLD WORLD.

MID-OCEAN, EN ROUTE FROM EUROPE TO CALIFORNIA, FEB. 12, 1879.

AFTER a two days' storm, which tore away our sails and made many of our fellows feel that they surely would never see Yankee Land, we now enjoy a delightful calm, and have just passed two steamers laden with goods and passengers from our country, on their way to Europe. I conclude that being at sea without a storm, like being in the army without a battle, is rather monotonous.

Having spent most of the two last months of 1878 in meandering from southern California to New York, calling at the Capital to shake hands with our President by way of encouragement (queens seem to enjoy a touch of recognition by their subjects), and look into Congress and the Treasury to see that all went on well there, I concluded that we have a great and interesting country to manage.

I then set sail for Europe, to see if we could do anything to help the sale of our great stores of honey. Arriving there, I was surprised to find such vast amounts of varied American products in these countries. Such a center of trade is London that it seems as if all countries, when over stocked, send their surplus to her; so much so that many things are purchased cheaper there than where they are produced. California oranges sell there for half the price charged in California, and bread made from California wheat sells for a penny a loaf less in London than at home.

I now return home with feelings of humble gratitude for the many hearty expressions of kindly feeling and high estimation for America, everywhere met with in Great Britain. Their leaders proclaim that to America they must look for their own prosperity, and the great honor everywhere bestowed on General Grant is because he has been President of the United States.

While in England, I called on a number of bee men, including the editor of the *British Bee Journal* and Marriott who keeps bees in the Crystal Palace. They entertained me kindly, and showed me somewhat into the English style of bee-keeping. They seem to us rather to be experimenting and seeking pleasure, than getting their living from their bees. When honey comes abundantly, the small fixtures are mostly laid aside. England can never become a great honey producing country. Straw hives are still sold in the Crystal Palace.

But I think you will open your eyes in wonder, when you read, in the copy of the London *Times* which I mailed you from Liverpool, the article on "Honey and Bee-Keeping in America." One feels as Gravenhorst of Germany did, when writing me a few years since in reference to Hosmer's notorious proposal, to take 10,000 lbs. of honey from 10 hives in one season. He exclaimed, "How is it in America? does it rain down honey? If Hosmer do all he say, then I sell all I got and come to America." If it were not in the London *Times*, and quoted from it all over England, I could hardly have believed that we apiarian students and readers of bee journals could yet be so ignorant of the extent of the bee business in our own country, and the modes of conducting it.

Just think of the vast numbers of bee-keepers in America with their thousands of hives of bees farmed out on shares, one of them selling his one season's crop of honey for double the amount of the President's salary! Even business men in the cities forced by the great, tempting profits of it, to invest in it! Thurber & Co., for instance, having 12,000 hives! I would have been surprised to have learned that they had 50 hives.

I think, too, it will ruffle your plumes a little to

learn that it was the honey agent of this firm who developed the fdn., and made it a practical thing in America. He is also said to have been successful in perfecting plans for the safe shipment of comb honey to Europe; although a prominent honey dealer in Liverpool told me that this agent had just landed a large lot of honey, so mashed up that he thought they would not be likely to undertake another shipment of comb honey soon. However, I hope he is mistaken in this, and from the amount of section boxes of nice comb honey, evidently from the State of New York, which I saw in the shops of England and Scotland, I think he has at least made a partial success of it.

But the fact that Hoge, Thurber's agent, was in London, selling honey, at the time this remarkable paper appeared in the *Times*, accounts for its appearance.

The Crystal Palace honey dealer is selling broken pieces of English made honey, on plates, at 2s. 6d. (60 cts.) per lb. When I showed him a pound of honey in a Novice section, he seemed to think there could hardly be anything so nice for the trade, and wanted some of mine, of which I had sent a small lot with my extracted honey around Cape Horn, to test how it would carry without special care in handling.

My 40 tons of extracted honey being consigned to an agent in London, and being not likely to land there until late in the season, when my bees would be swarming, I left it to the chances of the market. Our agent, learning that it was insured at 5 to 7 cts. per lb., expressed the hope that it might sink, thinking that we would be better off than to incur the additional expense of securing a sale for it, which at the best would be slow.

I found small quantities of honey in the English market, from almost all the states of Europe—Greece, Italy, Portugal, France, Belgium, Scotland, and England. The honey from England and from Narbonne, in France, is the most highly esteemed. For, while West Indian, Chilian, and California honey is selling by brokers at 30 to 50 shillings per cwt. (112 lbs.), about 6 to 10 cts. per lb., English and Narbonne honey is selling at 60s. to 65s. per cwt. The honey from both these countries is good, but dark, and candies or "sets," as they call it, very hard.

The English honey is valued because it is English, and the Narbonne because they have learned that it is good. English people do not wish to be bothered with a change, even if the new article is probably the better. They are not so fond of novelties as the Americans; besides they value their honey on account of its being in the familiar, little, 1 lb., red or gray, earthenware pots, that they can set on their tables, which seems to them more appropriate than a 2 lb. tin can.

Foreign honey must, for a time at least, be sold at a discount. They value California honey above West Indian or Chilian honey, but there has already been so much inferior California honey sent to their market, that they begin to be shy of it; besides, they think that in trade they can hardly keep even with Americans.

In Paris, I was shown a bbl. of honey from California, from which the merchant extracted a sample already well candied; he smelled it and pronounced it sour; it was of no use trying to sell it, so there it lay.

I am sorry that the wet, foggy weather of last season, in California, prevented the proper ripening of honey, and for the unwise extracting of it while yet raw, thin, and unsealed, causing it eventually to become slightly acid, and to lack the rich, heavy body, and the fine flavor necessary to the best of honey.

When an Englishman has yielded his prejudices enough to try some of this far famed California honey, and finds he has got a lot of this inferior grade to lie on his hands unsold, it is impossible to get him ever again to try an article from such a questionable source. He decides that it is adulterated in some way.

Thus it is that our trade is already injured there, and will forever fail to assume the great magnitude, at the price of good honey, which our locality ought by all means to command, unless we extract our honey only when fully ripe, and use a uniform brand for all first class honey, being always positive that nothing inferior is ever sold under that brand. Do with half the amount of honey rather than spoil our trade. While the taking of honey by the use of the melextractor is really the scientific mode, yet it largely increases the liability of getting thin honey.

The honey market abroad, as at home, is very un-

settled. Dealers will not engage large quantities at once; for, say they, before you know it, these Americans will send on a flood of honey to be sold at once, for what it will bring, causing them, as competitors, to lose on their large purchases; hence the honey is nearly all bought at brokers' auctions, in lots of 500 or 1,000 lbs. each, just as they need it. This, of course, helps keep up the price, but makes the sales very slow.

As it looks to me, last year's crop will not be sold until the new one is on hand. Italy, Switzerland, and Germany seem to use more honey than the other states, it being very commonly kept on the table at hotels. Perhaps the Germans, so fond of beer and sour-kraut, may fancy our sour honey. I am glad such a large proportion of it has been forwarded to Hamburg.

As C. Dadant told us years ago, the French people must have their honey candied; also the English people usually prefer it so, and the harder it is, the better; for it carries better and is more like their own honey. This suits us, as we can hardly get it there without being candied, and our merchants at home discount it 2c. a pound as soon as it is candied; but European merchants prefer to get their honey while fresh and liquid, to be filled conveniently into their small pots and left to harden.

Some like the honey shipped in 2 lb. tin cans, as it saves them the trouble of repacking; yet a prominent firm in Liverpool, in selling out a large lot put up in this way by a San Francisco canning Co., found they had been selling under the same label ("Orange Blossom Honey," that probably had never seen an orange blossom), some of the poorest and some the best of honey. He could hardly be induced to try to sell more honey.

The larger number prefer it in bulk to repack to suit themselves. A large number prefer the 60 lb. tins, and barrels of 1 cwt. (112 lbs.), as such packages are in much demand among druggists and small grocers. Large barrels, although most economical to the producer, are not so favorably received.

For shipping abroad, I at present feel most inclined to use 2 lb. tins, 60 lb. tins, ten gallon (112 lb.) barrels, and perhaps some 25 gal. (300 lb.) barrels; also 1 lb. comb sections, as carrying safest and suiting the growing demand for very small packages. Uniformity in size of package is very desirable; it saves the expense and loss of emptying the honey to get the tare, besides a dealer, when a package is named, knows just what is meant; it is just the kind he had before.

It is economy for the producer to give full weight; if he puts 59 lbs. 14 oz. in a can, when it is weighed in port, it is counted 59 lbs., the owner thus losing 14 oz. If he puts in 60 lbs. and 2 oz., it is called 60 lbs., the owner losing only 2 oz.

I was not aware, until I learned it in England, that large quantities of rather good honey are exported from Chili. Who can inform us on bee-keeping in Chili?

It looks to me that we need one or two good business men, constantly employed in Europe, to look after the interests of American honey until a trade is built up. It is not the work of a few months.

San Buenaventura, Cal.

R. WILKIN.

Thanks, friend W., for your excellent sketches. I do not fear for my plumes, for I am getting all the credit I deserve, and perhaps more. Mr. Hoge, under the name of John Long, did do very much toward developing the fdn. business. The "bee-farming" story, sounds as if by a newspaper reporter. Perhaps like the confiscated cargo of honey, he lacked material, and was a little unscrupulous. I agree with you exactly in regard to extracting unripened honey, and I fear more from this source than I do from adulteration. I am very glad to see South America developing. We have now one subscriber in San Domingo, and one in Buenos Ayres. Who will start a cabinet, containing samples of honey from all these countries friend Wilkin has mentioned, in the different parts of the world? We have had plenty of the thick honey from Italy, with the imported queens, but it was not very good honey to eat.

Notes and Queries.

BAGGING A SWARM, "BLESSED BEES," ETC.

PLEASE let me know if a net of some kind, clapped over the mouth of a hive as soon as a swarm begins to issue, and kept there for a few minutes till a hive is got ready, would prevent swarms from rising in the air, and going off or clustering together. Those too many queens by clipping wings, and shall give that up. If something could be devised to place over the front of hives when a swarm issues, what a trouble would be saved! I hope you will get at the truth or falsehood of that book, the *Blessed Bees*, and let us know.

I. C. THORN, M. D.

Garafraza, P. O., Ont., Can., March 10, 1879.

[No doubt, a swarm could be "bagged" in the manner you mention, if you were on hand at the exact moment when they commenced to issue, and had your bag ready to hold over the entrance, but how will you be able to do this? I have written the author of *Blessed Bees*, asking him for a truthful statement of what he did do. His name, John Allen, is fiction, his locality, fiction, and I should call the greater part of his statements, not only fiction, but utter impossibilities. If any one has ever succeeded in feeding back extracted honey as he did, I should be pleased to hear from them.]

WATER FOR BEES.

I kept water by my bees last summer, but they persisted in going to my neighbors', who complain of them. How shall I stop them from going elsewhere for water?

JOHN NEWTON.

Westville, Conn., March 10, 1879.

[Fix a place at home, where they can *always* find water, without any danger of getting drowned, and they will, in time, become so attached to it, that they will seldom go to other places. Such an arrangement will soon be described in the A B C pages.]

SWARMING OUT IN EARLY SPRING.

Being a beginner in the bee business, I am full of wonder at the whims and notions of the little creatures. Yesterday, about 3 p. m., I had a swarm come out as in swarming time, which finally settled over and on the hive (an old fashioned box hive). I soon discovered the queen on top of the hive, and attempted to catch her, but she got away from me. I cannot tell whether she went back to her home or not. At night the bees settled down into the hive. There seemed to be enough honey. Why did they come out? I cannot comprehend it.

Five Corners, N. Y., March 10, '79. C. G. BARGER.

[I should think it very probable, from the account you give, that they swarmed out for want of food; if you know such was not the case, it is a phase of the absconding mania. See ABSCONDING in A B C.]

About $\frac{1}{2}$ of the bees in this part of the State are dead. Mine wintered full better than the average.

Delaware, O., March 13, 1879. DR. A. V. CONKLIN.

ABSCONDING TO THE "NOTRHEAST."

My bees all left me last summer; that is, all the young ones. I have 3 good strong stands. Now what shall I do to keep them this summer? They never would settle, but rose very high, and all went one course, northeast, and went so fast I could not follow.

S. D. SMITH.

Mercer Co., Pa., March 13, 1879.

[I think, my friend, that there must be much better pasturage somewhere in the direction you name, and that your bees decamp for that locality to save so much travel. See ABSCONDING in A B C. Of first swarms, keep the wings of the queen clipped as a preventive.]

I have 14 colonies of bees, in two-story Simplicity hives, all packed with chaff as you direct. I have the lower story entirely covered up with saw dust, except a small entrance in front. They have wintered to date without loss; not more than a pint of dead bees among them all. Some colonies would not cover 2 L. frames, when packed. During Dec., they did not fly, and not in Jan. until the 22d. They have consumed but little honey.

WM. PARMELEE.

Bean Blossom, Ind., Feb. 11, 1879.

THE COLD BLAST SMOKER.

That smoker is a little daisy. W. M. GIFFORD.
Joliettsville, Ind., March 1, 1879.

I received the smoker you sent me, in good order, 2 or 3 days ago. I am delighted with it, and so is every one to whom I have shown it.

Hillsboro, O., March 10, 1879. CHAS. BOWLES.

I received the smoker the 15th, and it came through all right. I could hardly wait until I could try it, and then what a smoke! Now, you cross bees, look out; for I have a boss smoker, and you may get smoke in your eyes.

O. P. W.

Twin Grove, Wis., March 18, 1879.

I received the 6 in. rip saw you sent to my address, and have made a foot-power machine, to rip stuff for bee hives. I had the frame made when the saw came, and got the mandrel made the same day I got the saw. The mandrel cost \$1.50, and my machine cost me \$4.87, for bolts, saw, mandrel, etc. It works tip top. I can rip 12 to 15 ft. per minute. Any child can run it.

I had one stock of bees which smothered. They were 4 miles from home, and the sleet and snow closed the entrance of the hive. I have 3 stands packed in fine cut straw.

W. W. EDINGTON.

Bluffton, Ind., Jan. 4, 1879.

[We find it quite difficult to get up a good steel mandrel, with boxes and all complete, for a foot-power saw, for even \$5.00; but it seems our friends manage to get up something that answers, for a very much less amount. I hardly think the cheap mandrels run as easily, as are durable, or give as accurate work, as those we make, yet I may be mistaken. If you can rip the amount you say, even with one of the best machines, I think you must be a pretty stout man.]

If your bees that died were packed in cut straw, they certainly could not have smothered, simply from having their entrance closed.]

I am well pleased with my progress; from the colony of Italians procured of you in April last, I have increased to 3, by artificial swarming. I have adopted your hive and plan of management throughout, and now have 12 strong colonies, snugly packed in sawdust, and chaff cushions over frames. I took 56 lbs. of beautiful sections from 1 colony, made in 14 days.

SAM G. HILLIS.

Concord, Ky., March 4, 1879.

HOW TO WORK FOR RAPID INCREASE.

I have 4 swarms of Italian bees in L. hives, all in apparently good condition. I would like to increase, either by natural or artificial swarming, this coming season, to 12 stands. One of your A B C class.

C. B. WOODMAN.

Johnson's Creek, Wis., Feb. 23, 1879.

[It will be quite risky for an A B C secolar to make 4 colonies into 12, in a single season. You can do it easily enough, but to build them all up strong enough to winter safely is where the trouble comes in. You might have no more than 4 again, by the next spring. If your colonies are strong, you can commence rearing queens as early as May, and when these queens get to laying, build them up with frames from the others as given in the A B C. To increase to 12, you would have to feed liberally, at all times when honey was not coming.]

WHEN TO TAKE OFF THE CHAFF CUSHIONS.

Is it safe to leave the chaff cushion on top of the frames through the summer or not?

[The chaff cushions are beneficial until they must be removed to put on the boxes.]

RICE CHAFF.

Will rice chaff do for making these cushions, and for packing bees in the winter?

[Any chaff that is soft and warm, and absorbs moisture, but dries out quickly afterward, will do.]

TRANSFERRING.

I am about through transferring 25 colonies, and I tell you it is a bad business. I am very tired of it, I assure you.

ABSCONDING DURING TRANSFERRING.

In transferring one strong colony, I found plenty of brood, but did not see any queen; and in an hour after the transfer, the bees left and settled, and finally went into other hives as if they were queen-

less. Was the queen killed or lost in the transfer?

[I should think the queen was probably lost; but it is a very singular thing for the bees to desert their combs and brood, even if she was.]

I want to increase gradually till I have 100 or 200 colonies; will it pay me to buy a Barnes saw to make my hives?

[I should think a Barnes saw would pay anyone who had 25 colonies.]

HOW TO ARRANGE THE COMBS IN TRANSFERRING.

In transferring, I placed the combs side by side; should I have placed an empty frame between each two combs? [No.] Or all empty ones at one side? [Yes.] The latter was the way I did it.

[Put the combs of brood close to each other, exactly as they were before transferring, or there will be much danger of the brood's being chilled; especially, if it is early in the season.]

BOARD COVERS FOR SHADE.

In shading hives, how would it do to make a wide cover of boards, say 4 or 6 in. larger every way than the hives, and just place 2 bricks on top of the hive, and place these boards, or covers, on the bricks?

[Such a cover for shade answers very well, but is in danger of being blown off by the wind, and is apt to be unsightly. It also makes more trouble in opening hives, than where we have some kind of a plant or vine for shade.]

WILL BEES SWARM BEFORE THE HIVES ARE FULL?

My bees have only about 4 to 5 frames filled with comb. Will they fill the empty frames before swarming time?

[They will probably fill out the other combs before swarming, although they do not always do so.]

WHEN TO PUT IN THE SECTIONS.

Shall I wait until nearly swarming time before I put on upper stories, containing 50 empty section boxes?

[Yes; or rather wait until they have got everything below filled with bees, brood, and honey.]

Bees have wintered here splendidly.

R. C. TAYLOR.

Wilmington, N. C., March 13, 1879.

ABSCONDING IN SPRING.

I hear a great deal of complaining among my neighbors, about their bees leaving their hives and joining others, and, in some instances, going to the woods. In every instance, they report honey in the hive deserted. We cannot explain; can you?

Evansburgh, O., March 18, 1879. L. B. WOLF.

[If you examine these hives closely, I think you will find something that is not all right. See ABSCONDING IN A B C.]

Bees have not wintered well in this locality; the old fashioned bee disease, or dysentery, has raged fearfully, caused by a honey dew that we had last August. Now, Mr. Root, if I should tell how I know so much, some one that kept 3 or 4 swarms all last season would contradict me, so I will keep still. I wintered 214 colonies all in the cellar, except 12 that I tried out doors. I lost one swarm out of the 214, and found several weak. We are having very nice, warm weather for the season, just what we most need for the unfortunate.

HIRAM ROOP.

Carson City, Mich., March 11, 1879.

CHAFF HIVES VERSUS COMMON ONES.

I have only lost 6 out of 55 stands this winter. I use Langstroth frames but about 10 in. deep, and chaff hives, which I think are just the thing, as my neighbor lost 30 in inch board hives and American frames.

R. I. OSBURN.

LeClaire, Iowa, March 10, 1879.

GREASING FRAMES AND RABBETS TO GET OFF PROPOLIS.

Will you be kind enough to tell me how it will do to dip the ends of all wood top bars in hot tallow, and grease the bearings of the hives with the same (rubbing all off with a cloth), to prevent bees from daubing on so much propolis?

S. T. PETTIT.

Belmont, Ont., Can., March 14, 1879.

[It will do first rate; for, if the bees do daub it with propolis, the propolis will readily slip or peel off, when pushed with the finger. The trouble of fixing all the frames where you have a great many hives is the only objection that I know of.]

I had 4 colonies last spring, increased to 8, and made 400 lbs. of extracted honey. They are under the snow, and I want the new smoker before the snow goes away.

S. WOOD.

Nottawa P. O., Ont., Can., March 10, 1879.

My bees are working on rye flour nicely. Have lost 4 nuclei and 2 full colonies to date.

Columbus, Ind., Feb. 4, 1879.

J. M. BROOKS.

SWARMING OUT IN THE SPRING.

I have lost just 2 stands of bees out of 24. I winter in a cellar with the door open. Some of my neighbors who wintered on summer stands lost half, or two-thirds. One of my colonies came out last Saturday (March 8th), and settled on a hive about 2 rods away. They had honey, eggs, and bees just hatching out. The hive was all right, and in good shape every way (except it was an American). Can you tell me the cause of their swarming out?

Wyoming, Ill., March 15, 1879. W. P. TURNER.

[Bees are more apt to swarm out thus, when wintered in doors. I think the colony must have been weak in numbers, and very likely their hive was open and cold; hence they left it.]

I received my smoker all right and was glad, too. Oh! how nice it is! I am much pleased with it—very much pleased; it was packed all right, and works all right. It makes lots of smoke. My hybrid bees are afraid of it, "you bet."

BEN MULLIKIN.

Brighton, Ill., March 19, 1879.

I am glad to see that you have applied a cover to your feeder. I was somewhat surprised to see H. W. Shuck's advertisement stating that he had patented the feeder. I think any disinterested person will say he has considerable "cheek" to claim it as his.

[The above seems rather hard on friend Shuck, but I can but feel that the rebuke is a just one. He who would take out a patent, and claim as his invention, an implement so well known to be the joint efforts of many, must have a good deal of hard-wood.]

I hope your inventions and improvements will continue. Although we have never thought favorably enough of more than 1 in 10 to adopt them, nevertheless we value GLEANINGS for these same inventions.

We are glad to see the number and quality of the wood cuts on the increase, and trust your subscription list will encourage you to continue them. A cut is easily read by almost any mind.

GERMAN ICE SCALE.

We are in want of a cheap scale and looked for the cut of the "German Ice Scale" which you proposed giving.

[We ordered some of the German ice scales, but the manufacturers assured us that they were very unreliable, and we did not get them; they might do for weighing bees for winter, for all that.]

As a general thing we can agree with your views and sentiments; but on the glucose question we think you are on dangerous ground. We would advise all bee-keepers to adopt the motto, "Touch not, taste not, handle not." Could you see some of the honey offered for sale in the Boston markets, you would decide that a stringent law against adulteration is needed. Its sale can not be stopped until there is a penalty attached.

[Put me on track of those who are offering adulterated honey, and I will put them in the Humbings and Swindles without hesitation. Give us the stringent laws and we will vote for them to a man.]

FDN. 4½ CELLS TO THE INCH.

We shall use considerable fdn. during the coming season, but do not want more than 4½ cells to the inch. Combs with this size cell, built in 1876, have never contained drone brood, and they produce the largest bees.

[Our mill for making fdn. 4½ cells to the inch has been made over into the smaller size, but we have a little of the fdn. on hand, that we shall be glad to sell you. I am inclined to agree with you, that such comb does raise larger bees.]

We do not take much stock in your new wooden quilt. We use rubber cloth and find it answers well, although rather costly. Bees carried in rye meal yesterday.

C. W. & A. H. K. BLOOD.

Quincy, Mass., March 11, 1879.

The "Smilery."

This department was suggested by one of the clerks, as an opposition to the "Growlery." I think I shall venture to give names in full here.

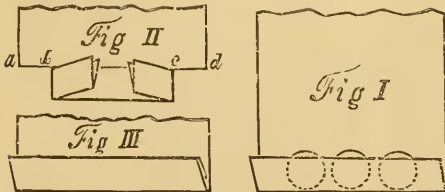
THE goods forwarded on the 22d reached here to-day. Express was only \$1.21. Goods were all that could be desired. The knife is a beauty; also the rule. Section frames complete are just the thing. Some of the fdn. came down, but they carried as well as could be expected. Many thanks for samples of honey labels. I had just got a thousand, which are not near as nice as yours. We may want some jars with those fancy labels; if so, will know where to get them. The white fdn. looks splendid; if the bees are as well pleased with it, all right. We have now in the cellar 45 swarms, all doing well so far as I know, and I hope we may be blessed with a bountiful honey harvest the coming season. M. E. BULLARD.

Burns, N. Y., March 5, 1879.

HOW TO SEND THIRTY CENTS IN SILVER BY MAIL.

SINCE the disuse of fractional currency, most persons and firms accustomed to receive small sums of money by mail have been much annoyed by having so large a proportion of it come in postage stamps, especially, in stamps of inconvenient denominations. Not one person in a dozen seems to know how to send silver in a letter. To the good work of removing this benighted condition of humanity, this article is devoted.

The difficulties to be overcome are these. Coins are slippery, and will rattle about in a letter, in a manner which is unpleasantly suggestive. They are also somewhat liable to break through the envelope, and steal away. They can be kept "as snug as a bug in a rug," and sent to the amount of 30 cts., or even 40 cts., for one rate of postage, by observing the following directions.



Take a light envelope, and half a sheet of thin note paper. Write your order close to the top of the sheet, leaving at least an inch and a half of the bottom blank. Fold upward a little strip of the bottom of the sheet, just as wide as the diameter of the coin or coins you wish to send, and lay them side by side in the little gutter which is thus formed. Fig. 1 represents your letter and dimes at this stage of the proceedings. Referring now to Fig. 2, which represents the lower portion of the same letter, cut 2 little gashes in the paper, one from *a* to *b*, and one from *d* to *c*. The strips which are partially severed are now to be folded over upon the coins, and rubbed down tightly. Fig. 2 shows them thus.

It might be well to mark the lines *a-b* and *c-d* with a pencil before cutting them, in order to get them just the right length. It is evident that the coins are now closely confined in every direction but one. They can still slip upward. Now fold this pocket-like package upward upon the rest of the sheet, and this door of exit is closed. It is not necessary to do anything more, other than to fold and inclose the letter as usual.

The coins cannot get loose until the pocket is turned downward; and the pocket cannot turn downward while in the envelope. The job looks a little more complete, however, if you continue to fold upward until you have turned one or two folds in the uncut portion of the paper. The lower end of the sheet will then look as shown in Fig. 3. Now fold to proper size, and enclose.

Just try this little device as an experiment once, and you will be surprised to see how snug and how handy it is. Give your envelope all reasonable sha-

king and rough usage, and see how immovable the coins are in their paper nest. They are fastened to the substance of the letter itself. Shouldn't wonder if you should feel so grateful to GLEANINGS for the information, that you would at once extemporize an order for 30 cts' worth of little traps.

A half ounce of dimes and half dimes is 55 cts, very nearly. If you can make your envelope and sheet weigh the same as a dime and a half, you can inclose 40c., without having to pay extra postage. This is perfectly possible, but should not generally be attempted, unless you have a balance at hand to weigh the letter.

GLEANINGS furnishes electrotype copies of its cuts, and for 60 cts, will send these figures to any paper desiring to republish this method of sending money.

It occurs to me, friend Root, that, sometimes, when we send a small order to a person in whom we have perfect confidence, it would be most convenient to send a dollar bill and have the change returned. Would it not be well to make your patrons some offer of this sort? E. E. HASTY.

Bodley, Ohio, Jan. 31, 1879.

Humbugs & Swindles.

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

N. C. MITCHELL has one victim here, a man by the name of Bushnel, of Gustavus, Ohio. He sent \$5.00 for a right to use the hive that Mitchell sells for \$1.00. He also sent, last fall, \$20.00 to Mrs. Cotton, of West Gorham, Me., for a swarm of Italian bees, with instructions how to make \$50.00 to a swarm, and he has received nothing yet for his money; \$25.00 out by not taking GLEANINGS.

C. M. T.

I have taken pains to ascertain who Mrs. Lizzie E. Cotton is. She is a man! Her name is C. B. Cotton, *alias* Lizzie E. Cotton. Post that scoundrel in GLEANINGS. C. B. Cotton is the villainous husband of "old Liz." I know it to be so.

Malcom, Ia., Feb. 10, '79.

WM. CLEMENTS.

Honey Column.

Under this head, will be inserted free of charge, the names of all those having honey to sell, as well as those wanting to buy. Please mention how much, what kind, and prices, as far as possible. The prices quoted in our cities for honey are, at present, too low, to make it worth while to publish them. As a general thing, I would not advise you to send your honey away, to be sold on commission. If near home, where you can look after it, it is often a very good way. By all means, develop your home market. For 25 cts., we can furnish little boards to hang up in your doorway, with the words "Honey for Sale" neatly painted. If wanted by mail, 10c. extra for postage. Boards saying "Bees and Queens for Sale," same price.

HONEY MARKETS.

CHICAGO.—Honey—Choice, in single comb boxes, 10@15c. Extracted, 6@10c.

Bees-wax.—Choice, yellow, 23@27c. Darker grades, 16@20c.

NEW YORK.—Honey—Best comb, 12@15c. Extract ed, 7@10c.

Bees-wax.—Choice, 28c.

CINCINNATI.—Honey—Best, in single comb boxes, 10@15c. Extracted, 8@10c.

CALIFORNIA.—Honey—Comb, 9@11c. Extracted, 4½@6c.

Bees-wax.—Best, 30@31c. For darker colored, 20@22½c.

The "Growlery."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

THE following explains how easily we may be blaming somebody who is not to blame at all:

I take the liberty of writing you this morning, to inform you that I signed, and also paid my money, for GLEANINGS, and have received 2 Nos. only. Our postmaster said there had been none received at his office since the first two. You will please forward immediately, as I am dealing in bees and wish for full information. J. R. KNIGHTLIN.

Corunna, Mich., Nov. 5, 1878.

Of course, we sent the missing Nos. again, and supposed it was all right, as the P. M. said none had been received, carefully examining his address on the list to see if all was right. Imagine our surprise on receiving the following:

Feeling somewhat anxious about my books, I thought I would say to you that this is the second time I have written you, and have heard nothing from you. I failed to get the Oct. number, and also March and Feb. Nos.; that is 3 books out, and you will please attend to it at once, or refund the money. I was pleased with the books, and should in all probability have subscribed again after the expiration of the time, had all been right. You will please oblige J. R. KNIGHTLIN.

Corunna, Mich., Feb. 19, 1879.

Well, this is a muddle anyway. The whole matter was handed over to the "muddle clerk," and, after awhile, she produced the following. We all felt as the woman did when the bottom fell out of her tub; she said, "I can see *through* it now, as plain as can be."

I am in receipt of your bee journal under the name of J. R. Knightlin. I think a great deal of it, and mean to take it as soon as I can. It is a mistake of the postmaster. We have been building a meeting house, and it takes nearly all the loose change I can muster to help along, or I would send for GLEANINGS now. I have 20 swarms of bees, and would like all the information I can get. At any rate, I will send for A B C of Bee Culture all three parts. Address J. R. KNIGHT.

Corunna, Mich., Jan. 13, 1879.

Now, brothers Knight and Knightlin, please allow me the liberty of a little pleasant growl. If you two get mail at the same post office, with names so nearly alike, and initials exactly alike, it seems to me you must have had the same trouble before; I should suppose, too, that the P. M. would have known there were "two of you." And you, friend Knight, when you were building that meeting house—I am very glad indeed you are doing it, for I think it is the nicest thing to do in the world—when you were building that meeting house did it never occur to you that your name was not Knightlin, and that somebody else's name might be? Especially, as you had not subscribed for any bee paper? It is really funny, when we think that you both happened to be bee men too. If you will shake hands and promise to be good friends, I will forgive you both, but please do not be so hasty in deciding that we are purposely withholding your "bee books."

I received my smoker O K; but I do not think it will be worth anything to me. I am afraid to put fire into it for I know it would come to pieces; and as it is so pretty I do not want to spoil it. I tried it very slightly, but kept pouring water on it all the time to keep the solder from melting. There is no joking about this; I tell you, sir, for a fact, I know it will not stand fire. I wish I had got one of the old patented ones, for this one can't stand fire. I shall send the pieces back to you as soon as they melt.

Cabot, Ark., Mar. 19, '79.

B. F. CATHEY.

Our smokers are not put together with solder; they are soldered simply that they may better stand the rough handling by mail.

Have you not borrowed trouble needlessly, my friend? If it comes to pieces, send me them together with your bill of damages; but don't pour any more water on it.

Ladies' Department.

A WOMAN'S CHAFF HIVE.

I SEE in GLEANINGS many chaff hives mentioned, but none like mine. Mine is very simple, and was at first a necessity. When I first began to keep bees, I determined to make them pay their way. So with plenty of increase and no money, the only things that would answer for Simplicity hives were boxes from dry goods stores, some holding eight, and some ten frames, but at least eight inches longer than the Langstroth frame.

I nailed rabbits four inches (more or less) from each end, and put in chaff cushions; by removing one outside frame from each side, and putting in chaff cushions, I have a complete chaff hive, and a very successful one too.

This winter makes the sixth year that I am using such hives. I have never lost a colony, although some of my boxes are scarcely half an inch thick. Not being all of one size, and looking pretty rough, they are not as pretty as your Simplicity hives, but my bees are bright as a new dollar, and the hives are full.

MRS. C. C. ROZIER.

St. Genevieve, Mo.

We got our first hive (a two story Langstroth) in San Francisco. It is very roughly made and unpainted, and cost \$3.00. My husband, who has a great liking for neat work, wishes we were nearer to your supplies. Our almond trees are in bloom, and all day long they are full of bees. The sight and the sound of them makes us long to have our own little workers busy amongst them.

ISABELLA HARRISON.

Walnut Creek, Cal., March 6th, '79.

Friend Novice: You may regret opening the columns of GLEANINGS to us "women folks;" for we are famous talkers, you know, and must have our say. So I will say my say quick, lest you make the discovery that we are not *lords* of creation.

We, i. e., husband and self, came here in the fall of '73, intending to make bee culture a special study and life business. We brought 21 swarms here, but on account of being moved so late (the first of Nov.), and having no chance to fly until the 6th of Jan., they became diseased, and we lost all but two, and those came through with not more than a good handful of bees. But we had no idea of going into "Blasted Hopes," so we sent to the late Adam Grimm, and got two more. From these we took 100 lbs. of honey and 10 new swarms. Six of these died during the winter, but in the summer of '75 we increased to 22 swarms, and took about 500 lbs. surplus.

The next winter we suffered more losses, coming out in the spring with nine very weak colonies. These mishaps led us to study more closely, and the spring of '77 found us with 19 good stocks, and much practical knowledge of the business, which last seems to be good stock in trade to insure success. That summer, we increased to 36 fair colonies, with 900 lbs. of honey, and wintered 22.

My husband was all the time experimenting, and reading GLEANINGS. Last spring, he built a Bee-House or House Apiary, with all the hives packed with cut straw. He had made great calculations about experimenting largely during the summer, for he was truly enthusiastic in the study of the hab-

its of our little friends; but our Father knew best, and took him home. He died in July, leaving me alone, and I did the best I could. I took 1300 lbs. surplus, and put 38 strong stocks into winter quarters. All but two of these are alive at the present writing, and none have less than 3 frames with brood, larvae and eggs, and plenty of young bees.

MRS. ROSE THOMSON.

Cowlesville, N. Y., Mar. 20, 1879.

We sympathise with you Mrs. T., in your bereavement, and perhaps can form some idea of the trial it must be to do this work alone, while thinking of the loved one that is gone. May you be enabled to look to Him, who heareth even the ravens' cry.

ANOTHER GREAT HONEY PLANT.

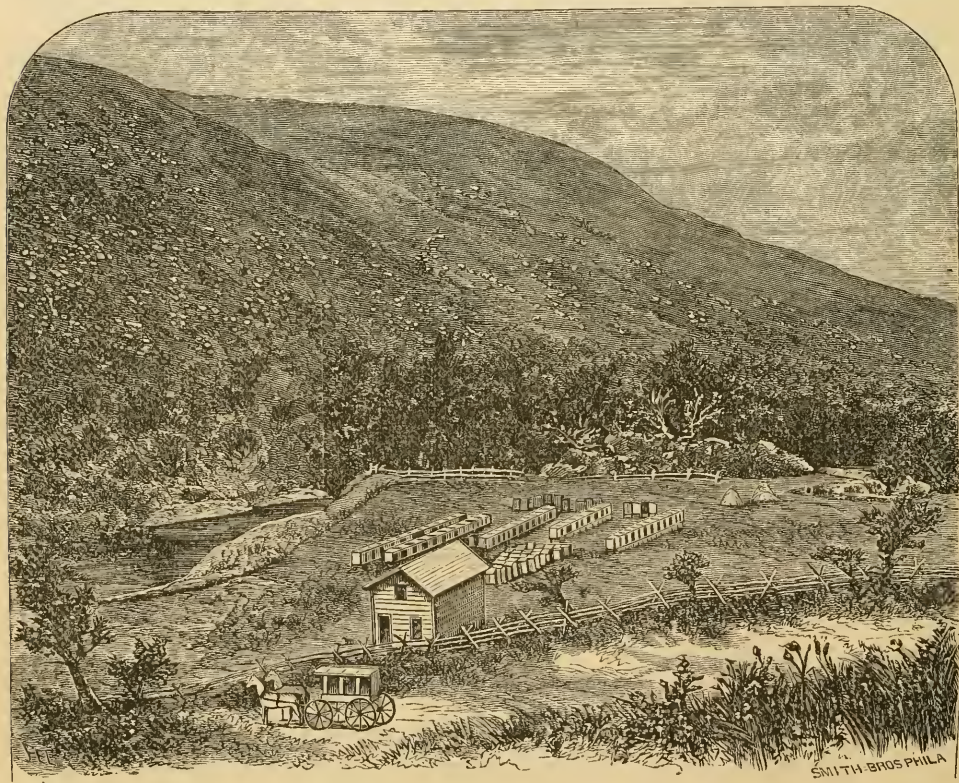
A NEIGHBOR of mine who kept bees in New Zealand informs me that the New Zealand Flax (*Phormium tenax*) is one of the best honey plants they have there. It is a sort of reed like

plant, having long leaves somewhat like those of Indian corn, throwing up a stem from the center to the height of 8 or 10 feet. This stem throws out branches of flowers somewhat like those of the morning glory. The secretion of honey seems to be very copious, because on turning a blossom downward the honey will drip from it; and from twelve or fifteen flowers as much as a tea-spoonful may be pressed. I wrote Peter Henderson, of N. Y., about it, and he tells me it will not do well in the open air in this climate, but from a letter in the *American Agriculturist* for 1879, I find that it is hardy in the south of France, and no doubt would thrive in parts of the Southern States. If it will yield honey as in its native climate, it will be a valuable honey plant. The fibre is used for rope making.

S. CORNELL.

Lindsay, Ont., Can., Mar. 22, 1879.

The botany states that this is valuable, when grown in the north, for ropes and cordage, but that it does not flower, unless grown farther south. Perhaps our Southern friends can try it and report.



A CALIFORNIA APIARY, NEAR SAN DIEGO.

ANOTHER CALIFORNIA APIARY.

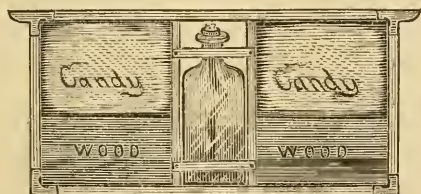
WHEN my brother sent the photos of the plants that bear honey by the pint and teacupful, he also sent one of a California apiary, which we give above. I should like to tell you something about it, but my brother is not as talkative as I am, and about the extent of his description was that it was a California apiary. Very likely the luxuriant foliage along the valley is principally those plants that bear the pints and tea-cupfuls, although he did not say so. It

seems to me the man that owns it might, in that case, "fix up" a little better, move his hives farther apart, and buy some shade trees. Perhaps he got only 5c. per lb. for his honey, and therefore does not feel surprisingly "spry" this spring. I really wish you California folks would send me a photograph of a really nice, orderly apiary, if (begging your pardon) you have any. The above picture cost me exactly \$35.00: I did not have it made for the sake of the apiary, but for the grand old mountains in the back ground. But I do not think the engraver did them half justice.

STIMULATIVE FEEDING.

ANOTHER IMPORTANT STEP TAKEN.

MR. Langstroth has been keeping up quite a correspondence with me, in regard to feeding bees flour candy, and giving them water at the same time, and has frequently spoken of experiments made by himself, and his neighbor, D. A. McCord. The out come of it seems to be the arrangement given below.



MC.CORD'S CANDY AND BOTTLE FEEDER.

It is absolutely necessary that bees should have water as soon as brood rearing commences in the spring, and, more especially, when they have candy, which they can utilize with greater facility when water is close at hand. There are many days in early spring, that are too cool for the bees to fly out and get water. Then, if a supply of water is given them in the hive, and also some candy with plenty of flour in it, they will go on with work, and increase about as fast as they would if they could fly out. I send you the above sketch of an experiment I have been trying, which I find to be a perfect success. Place an 8 oz., flat panel bottle in a common frame, fasten a slat on each side and one across the top with a hole for the neck of the bottle, bore a hole in the cork and put in a wick just as you would in a lamp, and fill with water; also fill the sides or a part of them with candy having plenty of flour mixed in it, and you have got it. I put one in a chaff hive with a 6 oz. bottle, and they scarcely touched the candy until I filled the bottle with water, when they went to work at once, and moistened the candy at the edges next the bottle, first, showing their economy in time, by making as few steps as possible. They took every drop of the water out by that wick in 24 hours. I have filled it several times since.

D. A. McCORD.

Oxford, O., March 24th, '79.

Many thanks, friend M. I will place to your credit \$5.00, for the above invention, and if it does not all belong to you, you can divide the money with the right person. I have no doubt it will be the thing exactly, and I imagine I see my way clear now, to something I have long sought; viz., a way of feeding bees sugar just as it comes from the stores, without waste. Have wooden boxes to hold the sugar at each side of the bottle, and perhaps it might be heaped right up around the "wick." To feed flour, just sprinkle it right in with the sugar. Sugar, water, and flour, all fresh, clean, and right under their very noses! Who will get the next \$5.00 for an improvement on this?

I BELIEVE it is finally decided that the grape sugar of commerce is not the glucose of commerce, and that grape sugar cannot be converted into the glucose of commerce; at least, the Michigan Agricultural College have failed in so doing. If any body else can do it, we should be glad to hear from them. Our books and dictionaries sometimes need setting right, like other people. If you send an order to any of the factories for glucose, you will never get grape sugar, and if you send for grape sugar, you will never get glucose.

STIMULATING BEES TO PROMOTE EARLY BREEDING.

I PROMISED to give the results of further experiments in feeding flour candy to secure early breeding. If I am mistaken in supposing that our editor first used flour candy for this purpose, he will set me right. Mr. Raitt, a Scotch apiarist, has obtained excellent results from using it as made by Mr. Root's receipt, while Mr. Pettigrew speaks, in the *London Journal of Horticulture*, of barley bannocks soaked in honey, as successfully used many years ago.

Harlib, in his *Reformed Commonwealth of Bees*, published more than two hundred years ago, is the first author of whom I have any knowledge, who recommends flour as a bee feed. He used that made from peas. As his work is mainly a compilation from the experience of others, it was probably an old practice in his day, just as giving bees a *roasted chicken*, which has found some modern advocates, can be traced back to the old Romans. I heard old bee-keepers, many years ago, recommend, as a desirable spring food for weak colonies, bread made from Indian corn and soaked in honey or sugar syrup.

I extract the following, in substance, from my journal.

Feb. 25th. Maximum temperature, 60°. A large spread of eggs and young larvae in my trial hive. In a neighboring apiary of 17 stocks, wintered in thin hives with chaff dividers and cushions, most of which were much stronger than my trial hive, only two had even a small patch of brood. In another apiary of about the same number of stocks, wintered in the same way, except that they had winter passages while none had been made in the combs of the first apiary, all the stocks had considerable brood.

Feb. 26th. 23°. Very strong wind, with occasional snow. Gave a bottle of water under the cushions, with a hole in the cork, on Novice's plan.

Feb. 27th. 20° to 22°. Water freely taken.

Feb. 28th. 20° to 40°. Always find bees clustered on candy. Many eggs and young larvae.

March 1st to 4th. Too cold for bees to fly; more snow. Found on the 4th very few eggs or larvae. All the pollen in the combs gone. Suspecting that the bees could not eat the candy fast enough to get what they needed for their brood, I gave old comb with pollen.

Mar. 5th. Bees worked well upon flour in the open air.

Mar. 6th. Heavy rain. When not raining, bees worked on flour in sheltered boxes.

Mar. 8th. 40° to 76°.

Mar. 9th. 50° to 72°.

Mar. 10th. 50° to 72°. Pollen from red maple.

Mar. 11th. 40° to 50°.

Mar. 12th. 28° to 20°. Have made a large spread of brood for their numbers.

Mar. 13th to 14th. Bees fly.

Mar. 15th. 18° to 34°. Very strong winds.

Mar. 16th. 18° to 30°. Four inches of snow.

Mar. 17th. 22° to 30°.

Mar. 18th. 8° to 28°.

Mar. 19th. 12° to 40°. No eggs or larvae have been destroyed this last cold spell. The spread of brood has been increased somewhat, but, of course, not nearly as much as if the weather had been warmer. In all the examinations I have made since the candy was first given, I have always found bees clustered upon it, although it was in the outside frame. They have steadily consumed it, and stored considerable of it, when liquified, in their combs.

I have been thus particular, that the kind of weather when these experiments were made might be clearly understood. My friend, Mr. J. H. Pierce, of Dayton, O., at my suggestion, has given flour candy to a number of stocks with substantially the same results; so that I think I may venture the opinion that we may now dispense with the great labor and disturbance of using liquid food for stimulative feeding.

I believe that the slow consumption of the candy, and the disposition of the bees to work incessantly upon it, is a constant stimulus, and for this reason gives better results than can be obtained in any other way.

If bees are well supplied with pollen, I should expect equally good results, even if the candy had no flour in it. In regions where pollen is gathered in

excess, I presume pure candy would be better for them. In my Oxford home, I have always found it a scarce article.

I send you for publication, a contribution to the *London Journal of Horticulture*, by an English bee-keeper residing in Algiers, who has been experimenting this last winter, in the same line with Mr. Raitt and myself, but under much more favorable circumstances.

By referring to *Blodget's Climatology*, I found that in Algiers the mean temperature for Dec. is 55°, 1, Jan. 52°, 9, Feb. 54°, 8; mean of the three winter months, 54°, 3. Mean of these months in New Orleans, 56°, 5. The mean of the three spring months in Washington and Cincinnati is the same as that of the winter months in Algiers. It will also be seen that the winter months in Algiers vary but little, and therefore are much more favorable to bees than our climate, even in spring.

Oxford, O.

L. L. LANGSTROTH.

NITROGENOUS DIET FOR BEES.

Now that spring feeding will shortly commence, what to feed—syrup, candy, honey, the various kinds of flour, &c.—will be the anxious thought of many. After the severe winter ordeal that British bees have gone through, my experience thus early in the year of a course of nitrogenous diet may be useful to your readers.

"Keep your stocks strong" is a cardinal principle in bee-keeping; but suppose that from any cause your stocks have dwindled to very weak ones. Having those weak stocks, but healthy, and queens of known value, what would you do? Buy up stocks to fortify them with? Of fifty stocks by uniting make twenty-five? No; that has not been my plan. In the first place you may not easily find colonies for sale, and price may be an obstacle. In the second place, having fifty stocks you want to meet the harvest with that number if possible. So we come back to the only solution of the question—viz., careful feeding-up.

"What new nostrum now?" I imagine I hear your readers exclaim, seeing we have lately been reading of Mr. Raitt and his bannock soaked in honey, and not long ago I saw a description of a garden plot of gigantic paper crocuses constantly supplied with artificial pollen by the careful bee-master.

Well, my nostrums are milk food and egg food, with a condiment to assist digestion; and my experience is that of December, 1878, January, and part of February of this year.

I wanted to make my stocks strong, and that quickly, so I read up the subject of feeding and pondered it over, coming at last to the conclusion that it was that kind of food which in a small compass contained the most highly essential ingredients for forming animal tissue that ought to be given.

Whether pollen forms the slices of toast a bee takes with his coffee of a morning or not I do not know; but I do know that vast quantities of pollen go into the hive if the weather is favorable and a supply at hand. I believe it goes in to feed both young and old bees from one simple consideration, that in the pollen is found that which is necessary for the formation and maintenance of all muscular tissue. I refer to nitrogen.

Water.....	12.74
Ash.....	2.72
Albuminous.....	21.75
Sugar.....	26.60
Artificial nitrogenous organic substances.....	36.59
	100.00

Here we find albumen and nitrogen predominating.

A French authority writes thus: "We distinguish in pollen—

"First, the waxy matter which holds the grains together;

"Second, the matter which forms the walls of those grains;

"Third, the matter contained in those grains.

"First and second contain only carbon, hydrogen and oxygen; but the third when analysed gives—carbon, 0.52; hydrogen, 0.7; nitrogen, 0.11; oxygen, 0.30." My authority goes on to say it is these nitrogenous parts of the pollen that are the nutritive portion for the bees, and the most important to consider.

This interior portion of the grains of pollen is the only part which contains nitrogen, that body indis-

pensable to the nourishment of larvæ and bees.

Now we know that no muscular tissue can grow without albumen which contains nitrogen, and that certain articles of food are richer in nitrogenous compounds than others; and we find in milk and eggs two notable examples.

In milk we have all classes of simple alimentary substances together, it being composed of water, compounds of chlorine salts, caseine, fat, and sugar, whilst the egg contains six of the alimentary principles—viz, carbon, hydrogen, oxygen, nitrogen, sulphur, and phosphorus, all easily soluble and assimilable.

All concentrated foods are difficult of digestion and so we supply a condiment to assist digestion in the shape of common salt placed in their drinking troughs.

Having, therefore, decided upon articles of food, I have tried them, and with such a measure of success that I hope my experience thus early in 1879 may be of use to induce others to follow on the dietary and report results.

The milk food I prepare thus: It is first boiled soon after being milked, the clot removed, and then if sugar be used to sweeten it a pound of sugar is dissolved in a quart of milk. If honey be used the milk must become cold before the honey (a pound to a quart) is added, and must not be warmed again.

Boiling prevents souring; and as skimmed milk is most easily digested, the clot which is caseine is removed.

In the milk of asses we find a poverty of fatty matters and an abundance of sugar. Those who keep these animals will, I hope, take the hint, and feed their bees with their milk, letting us know the result.

[Some of your readers who are of the doubting kind, and others who are fond of a joke, will perhaps say that all milk fed to bees, come from where it will, can be no other than the milk of asses.—L. L. L.]

The egg food I prepare thus: When a sufficient number of eggs have been broken into a basin they are well whisked, and honey added in the proportion of double weight of honey to a given weight of egg substance. To eggs I have likewise added a sugar syrup made of 7 lbs. of sugar to 4 lbs. of water.

This milk and egg food I give at night in little tin trays either placed inside the hive or outside on the doorsteps, the quantity being regulated to the size of the stock. The milk food I give every night, and can see no ill effect. The egg food I give for two nights, and allow the third to pass minus food.

At each feed I give what I consider adapted to the strength of the colony. As the hive grows in strength so the quantity will have to be increased.

If I notice that they are storing it away too rapidly I slightly diminish the supply. This refers to milk diet, but with egg food I am careful to give only what I feel sure will be consumed in the night. If I find any left in the trays next day I remove it and let another hive finish it at once.

The results are simply these; by the above means you can start the queen laying at any moment, and as fast as the bees hatch out strong enough to cover the brood every cell of a fresh frame of empty combs you insert will be found to contain a freshly laid egg.

I have one hive now fed on milk only. Six weeks ago it contained simply a queen and a handful of bees. They now cover four frames (Woodbury size), having built out their comb from Raitt's foundation, and are now busily engaged on a fifth. One noticeable fact is that whereas those particular bees were weak and puny, never showing fight, the present generation are large strongly developed bees.

Let us consider the enormous waste of muscular tissue per diem in every hard-working bee; and remembering that sugar in any form, being devoid of nitrogen, is contributing in no degree to the sustenance of that muscular tissue. I think that we can only come to one conclusion, and that is that bees do eat pollen.—ARTHUR TODD, *Algiers*.

I have no doubt but that the milk and eggs diet will give excellent results, but it is a deal more trouble than the flour candy, and I can hardly think has any decided advantage. If I am correct, the same facts were given in the *Bienen Zeitung*, some time ago. One of our German correspondents A. Gottman, No. 1, Bertram st., Brunswick, Ger., sent us a translation of the article, but we did not find room for it.

[*Concluded from last month.*]

DO BEES CHOOSE A LOCATION BEFORE SWARMING?

We have ample proof that they sometimes do, but whether such is always the case or not, we have no means of determining positively, so far as I can see. It is my opinion that, although they usually do so, there are many exceptions. When a swarm of bees catches the fever by hearing the swarming note of a neighboring colony, it seems difficult to understand that they could have selected their tree, and made the same provision for housekeeping that the first one may have done. The proof of this has been given many times through our journals. A neighbor of ours once saw bees going in and out of a tree, and supposing of course that it contained a colony, went with his boys the next day, and cut it down. It contained no sign of a bee. While they were standing still and wondering at this strange state of affairs, the boys doubtless joking their father about his seeing bees where there were none, lo! and behold! a swarm appeared in the air. They came to the very spot where the now prostrate tree had stood, and seemed as much astounded as a colony whose hive has been moved away. After some circling around, they clustered in a neighboring tree, and were hived. They had selected this as their home, it seems, and an advance party had gone ahead the day before, to clean out and fix the hollow ready for the swarm, and it was these house cleaners that my friend saw at work. I gave the above in GLEANINGS a year or two ago, and a large number of corroborating instances were furnished by our readers. The number of bees that go out to look up a location is not usually great, but they may often be seen about swarming time prowling about old hives, and hollows in trees, as if they were looking for something. After awhile, swarms come and take possession of these places, if they seem suitable, and of late, a hope has been expressed through the journals, that we might take advantage of this disposition and fix hives so attractive, that the bees will come out, select the "house and lot" that suits their taste best, and then, when they get ready, "move in." When this is accomplished, we shall have automatic swarming.

DECOY HIVES.

Many of the friends have followed out the idea given above, by locating hives in the forests, in the trees, and such hives have in many cases been quickly accepted and appropriated. I believe we are indebted to Mr.

J. H. Martin, Hartford, N. Y., for first suggesting the idea. Hives left standing on the ground in the apiary, have many times been selected by swarms, and, if I am correct, the bees, in such cases, often come out of the parent hive, and go directly to these hives without clustering at all. I have suggested, through our journal, the possibility that hives could be so arranged that the bees would be attracted by them, and use them instead of going for the woods. When this shall be successfully done, I think it will be a great achievement, and even if we succeed in securing only half of the run-away swarms, it will be no inconsiderable item.

AUTOMATIC SWARMING.

From what has been said, it will not take much of a jump of the imagination, to conceive of a hive so arranged as to swarm itself, mechanically. We usually keep a hive suspended on a spring balance, with the white dial so placed that the amount of honey gathered each day can be seen at a glance, even when only passing near the apiary. On coming to dinner one day, the dial showed that the hive had lost instead of gaining, and the loss amounted to exactly 8 lbs.; you see, this was the weight of the swarm which had issued during the forenoon. Of course, the hive rose an inch or two, after having been lightened so much. Well, the same idea has been used in connection with Quinby's queen yard for automatic swarming. The hive must first be made double; that is, an empty hive is fastened to the one filled with bees, and the two are balanced on a pivot. A weight is added to the empty one each morning, and suitable slides are so arranged that when the swarm goes out, the hives tilt, opening an entrance into the new hive, and closing the old one. The queen, having her wings clipped, is confined in the queen yard; the bees rush back on missing her, and their old entrance conducts them right into the new hive, the queen following in with the rest. I believe this machine has been brought into shape so as to work in practice, but, like many other things, the amount of machinery required for each hive, and the labor of adjusting the weights each morning, on every hive, more than balances the trouble of hiving, and the possible loss of swarms which issue in the old way.

Another automatic swarmer has been invented and brought into practical use, by D. A. Jones, of Beeton, Ont., Canada. This is based on the principle, or rather the pecu-

liar habit which swarms have, of alighting on the same spot or limb, on which other swarms have alighted before. Where many hives of bees are kept, it is well known that after one swarm has clustered on a certain limb, others are apt to choose the same spot, and often, nearly every swarm of the season, by some strange instinct, will take to that very limb, as soon as they leave the hive.

After having watched a great many times to discover the cause of this queer behavior, I decided it came about thus: as soon as a swarm issues, straggling bees scatter about in every direction, and while the air is full of them, you may see individual bees scanning and hovering about all the twigs and shrubbery for rods around. Well, if a swarm has clustered on one of these twigs or limbs, and a bee should come very near the spot, he would catch the scent of the queen, from her having rested on the spot, even were it a week before. See *ODOR OF QUEENS*. Well, as soon as he catches this, he gives a call, and other bees rush to the spot, and the probability is, the whole swarm will soon be clustered on this very limb. After this, the chances are double, that the next will alight there, and so on. Aside from the odor of the queen, the limb almost always has bits of wax fastened to it by the bees, while hanging there, even if they hang clustered not longer than 15 minutes.

Our friend Jones fixes something like an old fashioned well sweep; that is, a pole balanced in a fork, so that its smaller end is high in the air, while the other rests on the ground. On this heavy end, is fixed a box to contain stones for ballast. At the other, is what is sometimes called a bee-bob. This may be a bunch of hay, or a bunch of green leaves. I have heard of using a black stocking on a pole, to cause the bees to light on it. Mullen heads dipped in ink, so as to imitate a swarm of bees, are also recommended. Perhaps the best thing is a ball made by stringing dead bees on a string with a needle, and then winding it about some substance about the size and shape of a swarm, letting some of the strings hang down. Well, suppose you put stones in the box, until about 5 lbs. on the bee-bob would cause it to sink with a moderate speed. If a swarm should cluster on this bob, it would be let down automatically, as soon as the weight was sufficient. A stop is arranged at the proper point, to stop the pole and shake off the bees, and, as a matter of course, a hive is set right at the proper point for them to run

into it. If they go back to the bee-bob, it will let them down again; and so on. Further more, our ingenious friend has a bell and pistol fixed to the post, so that one is rung, and the other discharged, to let the apiarist know that his bees are safely in the hive, ready to be placed where he wishes. Many of these machines have been put up, but I believe few succeed with them, as does friend Jones, principally for the reason that the first swarm can not be made to use the bee-bob, in preference to some place suiting their own fancy. I give these plans, that you may know what has been done.

RINGING BELLS AND BEATING PANS TO BRING DOWN A SWARM OF BEES.

The books, of late years, have seemed to teach that this practice is but a relic of superstition, and that no real good was accomplished by the "tanging," as it is often called. Perhaps it usually has no effect in causing them to alight, but from watching the habits of swarms, I am inclined to think otherwise. Those in the habit of seeing queens on the wing are generally aware that the note they give when flying is quite different from that of a worker or drone, and many times, when a queen has escaped while being introduced, I have detected her whereabouts by the sound of her wings, before I had any glimpse of her at all. With a little practice, we can distinguish this note amidst the buzzing of a thousand bees flying about, so as to turn our eyes upon her when she is quite a distance away. Is it not likely that the bees composing a swarm know this sound as well as we do, or much better? Again; a swarm of bees usually has scouts to conduct them to the tree, or other place of their chosen abode, and it is quite likely they follow these scouts and know of their presence, as they do their queen, by the sound they emit from their wings. A noise, if loud enough, would be likely to drown these sounds, and thus produce disorganization. Throwing dirt or gravel among them will bring them down generally quite speedily, and I suppose it is because it produces disorganization much in the same way.

Throwing water among them is thought to be more effectual than either the sounds or the dust, and it has been suggested, that it is because they think a shower is coming up; but I am inclined to think it is more the disorganization, and perhaps also the wetting of their wings, that makes them hurry to cluster on the nearest object. If a pail of water is near the apiary, and a dipper handy, swarms that do not seem inclined to cluster

may usually be made to do so without trouble. As it is difficult to throw water with a dipper as high as swarms often fly, and in the fine spray that seems most effective, a small, hand, force pump, or fire engine, has been used, and seems to answer the purpose most effectively. With a pail of water on your left arm, and the fountain pump, as it is called, in your right hand, you can chase after a swarm if need be, and with the attachment for giving a fine spray, you can wet their wings, if they threaten to be stubborn, so that they *must* come down.



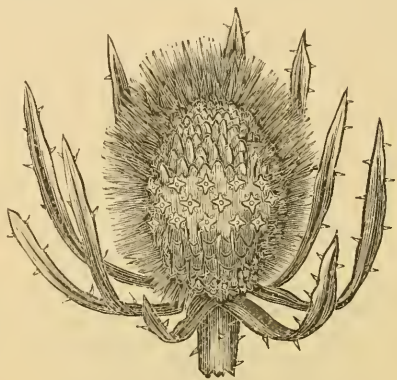
As this fountain pump is a most valuable implement to have around for a great variety of other purposes, to say nothing of fires, I think the investment a very judicious one for the bee-keeper. In one case, our honey house took fire from the stove pipe, after we had been making candy, and a fountain pump saved the building after the fire had burst through the roof. The whole apiary would have suffered much, and much of it been entirely destroyed, had not the fire been extinguished in the building.

Many claim that absconding swarms can be stopped by flashing across them the reflection from a looking glass. This has been explained by saying they take it for lightning, and stop, thinking that a storm is coming. I am inclined to think the true solution of this and other means used to bring down swarms is that it disturbs and disorganizes the body, thus causing them to alight.

In concluding the subject of swarming, I would ask the reader's attention to some excellent articles on the subject, written by G. B. Peters, of Council Bend, Ark., and found on pages 241 and 265, of Vol. IV.

TEASEL (*Dipsacus*). The Greek name of this plant signifies to thirst; because the heads, after flowering, are of a porous nature,

and "drink" large quantities of rain water. On account of this property, the heads are often used to sprinkle clothes, before ironing. They take up the water, and, when shaken, throw it out in a spray.



TEASEL (*Dipsacus Fullonum*).

The variety that produces honey is the one used by fullers in finishing cloth, and hence its name, *D. Fullorum*, or fullers' teasel. This plant, like the buckwheat and clover, is raised for another crop besides the honey, and therefore may be tested by the acre without so much danger of pecuniary loss, should the honey crop prove a failure. Our friend, Doolittle, pronounces the honey remarkably white and fine, but some others have given a somewhat different opinion.

From what I can learn, I am inclined to think Teasel does not yield honey every year; it grows in considerable quantities by the road sides and in waste places in our locality, but I seldom see bees on it, at all. Perhaps acres of it under high cultivation might make a great difference, as it does with any other plant. On page 6, of last year's GLEANINGS, will be found a very full account of the method pursued in its cultivation.

TOADS. These, without question, are an enemy to the honey bee. They usually plant themselves before the entrances of the hives about night fall, and, as the heavily laden bees come in, they are snapped up with a movement that astonishes one who has never witnessed it. His toadship sits near the alighting board, with an innocent, unconcerned look, and, although you see a bee suddenly disappear, it is only after you have repeatedly witnessed the phenomenon, that you can really believe the toad had anything to do with it. By observing very closely, however, you will see a sort of flash, as the bee disappears, accompanied by a lightning like opening and shutting of his

mouth. The bee is taken in by his long tongue, and I should judge that he is capable of striking one with it, when as much as two inches distant. I do not know how many bees it takes to make a meal, but I do know that toads will often become surprisingly thick about the hives during the honey season, if they are not driven away by some means. I have been in the habit of killing them, but I must confess, my feelings revolt at such severe measures, and I much prefer the plan a pleasant friend gives on page 145 of this No.; viz., carrying them off to some distance, where they may live without doing anybody or anything any harm, if such a place there be.

WINTERING. The following are the extracts spoken of by Mr. L., last month, from his first edition of *The Hive and Honey Bee*, published in 1853.

I specially invite a careful perusal of this chapter, as the subject, though of the very first importance in the management of bees, is one to which but little attention has been given by the majority of cultivators.

In our climate of great and sudden extremes, many colonies are annually injured or destroyed by undue exposure to heat or cold. In summer, thin hives are often exposed to the direct heat of the sun, so that the combs melt, and the bees are drowned in their own sweets. Even if they escape utter ruin, they cannot work to advantage in the almost suffocating heat of their hives.

As soon as the temperature of the hives falls too low for their comfort, the bees gather themselves into a more compact body, to preserve to the utmost, their animal heat; and if the cold becomes so great that this will not suffice, they keep up an incessant, tremulous motion, accompanied by a loud humming noise; in other words, they take active exercise in order to keep warm! If a thermometer is pushed up among them, it will indicate a high temperature, even when the external atmosphere is many degrees below zero. When the bees are unable to maintain the necessary amount of animal heat, an occurrence which is very common with small colonies in badly protected hives, then, as a matter of course, they must perish.

Extreme cold, when of long continuance, very frequently destroys colonies in thin hives, even when they are strong both in bees and honey. The inside of such hives is often filled with frost, and the bees, after eating all the food in the combs in which they are clustered, are unable to enter the frosty combs, and thus starve in the midst of plenty. The unskillful bee-keeper who finds an abundance of honey in the hives, cannot conjecture the cause of their death.

I must notice another exceedingly injurious effect of insufficient protection, in causing the moisture to settle upon the cold top and sides of the interior of the hive, from whence it drips upon the bees. In this way, many of their number are chilled and destroyed, and often the whole colony is infected with dysentery. Not unfrequently, large portions of the comb are covered with mold, and the whole hive is rendered very offensive.

When bees, in unsuitable hives, are exposed to all the variations of the external atmosphere, they are frequently tempted to fly abroad if the weather becomes unseasonably warm, and multitudes are lost on the snow, at a season when no young are bred to replenish their number, and when the loss is most injurious to the colony.

From these remarks, it will be obvious to the intelligent cultivator, that protection against extremes of heat and cold, is a point of the very first

importance; and yet this is the very point, which, in proportion to its importance, has been most overlooked. We have discarded, and very wisely, the straw hives of our ancestors; but such hives, with all their faults, were comparatively warm in winter, and cool in summer. We have undertaken to keep bees, where the cold of winter, and the heat of summer are alike intense; and where sudden and severe changes are often fatal to the brood; and yet we blindly persist in expecting success under circumstances in which any marked success is well nigh impossible.

It will not be without profit, to consider briefly under what circumstances wild colonies flourish, and how they are protected against sudden and extreme changes of temperature.

Singly housed in the hollow of a tree whose thickness and decayed interior are such admirable materials for excluding atmospheric changes, the bees in winter are in a state of almost absolute repose. The entrance to their abode is generally very small in proportion to the space within; and let the weather out of doors vary as it may, the inside temperature is very uniform. These natural hives are dry, because the moisture finds no cold or icy top, or sides, on which to condense, and from which it must drip upon the bees, destroying their lives, or enfeebling their health, by filling the interior of their dwelling with mould and dampness.

As they are very quiet, they eat but little, and hence their bodies are not distended and diseased by accumulated faeces. Often they do not stir from their hollows, from November until March or April; and yet they come forth in the spring, strong in numbers, and vigorous in health. If at any time in the winter season, the warmth is so great as to penetrate their comfortable abodes, and to tempt them to fly, when they venture out, they find a balmy atmosphere in which they may disport with impunity. In the summer, they are protected from the heat, not merely by the thickness of the hollow tree, but by the leafy shade of overarched branches, and the refreshing coolness of a forest home.

The Russian and Polish bee-keepers, living in a climate whose winters are much more severe than our own, are among the largest and most successful cultivators of bees, many of them numbering their colonies by hundreds, and some even by thousands!

They have, with great practical sagacity, imitated as closely as possible, the conditions under which bees are found to flourish so admirably in a state of nature. We are informed by Mr. Dohiogost, a Polish writer, that his countrymen make their hives of the best plank, and never less than an inch and a half in thickness. The shape is that of an old-fashioned churn, and the hive is covered on the outside, half-way down, with twisted rope cordage, to give it greater protection against extremes of heat and cold. The hives are placed in a dry situation, directly upon the hard earth, which is first covered with an inch or two of clean, dry sand. Chips are then heaped up all around them, and covered with earth banked up in a sloping direction to carry off the rain. The entrance is at some distance above the bottom, and is a triangle, whose sides are only one inch long. In the winter season, this entrance is contracted so that only one bee can pass at a time.

We are now prepared to discuss the question of protection in its relations to the construction of hives. We have seen how it is furnished to the bees in the Polish hives, and in the decayed hollows of trees. If the apiarian chooses, he can imitate this plan by constructing his hives of very thick plank; but such hives would be clumsy, and with us, expensive. Or he may much more effectually reach the same end, by making his hives double, so as to enclose an air space all around, which in winter may be filled with charcoal, plaster of Paris, straw, or any good non-conductor, to enable the bees to preserve with the least waste, their animal heat.

I have been thus particular on the subject of protection, in order to convince every bee-keeper who exercises common sense, that thin hives ought to be given up, if either pleasure or profit is sought from his bees. Such hives an enlightened apiarian could not be persuaded to purchase, and he would consider them too expensive in their waste of honey and bees, to be worth accepting, even as a gift. Many strong colonies which are lodged in badly protected hives, often consume in extra food, in a sin-

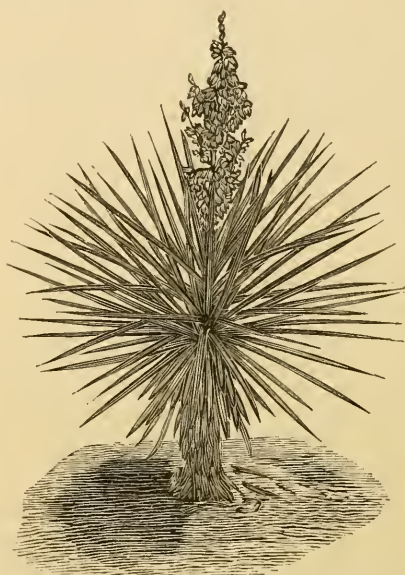
gle hard winter, more than enough to pay the difference between the first cost of a good hive over a bad one. In the severe winter of 1851-2, many cultivators lost nearly all their stocks, and a large part of those which survived, were too much weakened to be able to swarm. And yet these same miserable hives, after accomplishing the work of destruction on one generation of bees, are reserved to perform the same office for another. And this, some call economy!

To all of the above I most heartily agree with Mr. Langstroth. Before making the chaff hive, I tried hives of $\frac{1}{2}$ inch, and $\frac{3}{4}$, but, even in summer time, I found the bees much more averse to building combs next to the sides of these hives, than they were in hives made from inch boards. Very likely plank would give still better results, as Mr. L. states, but I think not nearly equal to the porous walls of the chaff hive.

THE PLANT THAT BEARS A HALF GALLON OF HONEY A DAY.

HERE it is, boys. Did I not tell you we Yankees would be going right down there after it? Who wants to buy seeds? It may not blossom for a hundred years, but who cares? When we are after a good thing, we can wait a hundred years, just as well as not.

Well, you see, I have a brother, now in San Diego, Cal., who has formerly been in New Mexico, and after reading that account last month, from friend Metcalf (page 100), I wrote at once to my brother, asking if it was really not over stated. He said it was not, and sent a photograph of the plant. Here it is.



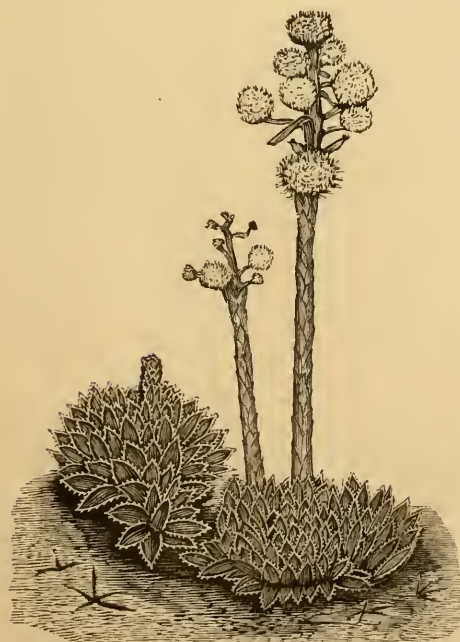
YUCCA, OR SPANISH BAYONET.

My brother very kindly sent a photo of this plant also. You will remember that this does not bear a pint to the blossom, but only a teacupful. Sad, is it not? But we can console ourselves somewhat, for there are several dozen flowers on a stock. It is too bad that the "Blessed Bees" man did not know of these plants before he wrote his book.

I presume the name bayonet is given it on account of the sharp, spine like leaves; I suspect they are to prick folks when they try to get those teacupfuls of honey. There is no rose without its thorn, you know. There! I almost forgot to tell you that I have ordered, from a nursery man, one of these plants in full bloom. Next month, I hope to be able to tell you more about it. Pints and teacupfuls! And here we have been fooling away our time all these years past, with clover heads, and just little drops of honey.

Our friend Viallon, of Bayou Goula, La., has purchased the apiary of Wm. H. Ware, consisting of 450 colonies. As he has plenty of imported queens, I expect him to give us a "big lift" in supplying you with early queens during the coming month.

"THERE! I told you so," as the old lady said, when her son gravely informed her that the cow had gone and eaten up the grindstone. I offered you 10c for the Jan. No., but only about a half dozen would sell them for that. Now I offer you 15c each, and those who want to buy them must pay 20c. I shall have to charge the same for the Feb. No., for they, too, are all gone but a dozen or two.



THE HONEY BEARING CENTURY PLANT
[*Agave Shawii*].

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POST-PAID.
MEDINA, APR. 1, 1879.

I am the light of the world; he that followeth me shall not walk in darkness, but shall have the light of life. John 8: 12.

THERE are 62 of us now at work, little boys and all.

A B C part IV is all in type, and it will be put right on the press as soon as this number is out.

THE *Western Honey Bee* is the title of a new journal published at Lebanon, Mo. If I am correct, sample copies are mailed free of charge.

THE *Bee Keepers' Exchange*, for Jan., is at hand, and is a lively and valuable contribution to our ranks. The other Nos. are to follow shortly; so friend Nellis says. It is an inconvenient and trying thing, friend N., we know by experience, to be so much behind, especially, when first commencing. You have our sympathy.

It is hard to tell old subscribers that they cannot have Jan. and Feb. Nos. for less than 20c. apiece, simply because they were a little behind in renewing, but as I cannot foresee these unusual demands, how can I help it? The journal you are reading this minute, that cost you 8c. or less, I may offer you 20c. for, a month or two hence, *after you have read it and had the full use of it.*

I AM in receipt of a pleasant letter from the author of "Blessed Bees," regretting that any one should have taken the book to be a narration of facts, and promising to have my criticism, in the March No., sent out with every book. I regret that he has not thought proper to give in a brief, condensed form, the exact truth of what he has succeeded in doing with bees pecuniarily.

It has been suggested that grape sugar killed my bees, but, as I told you last fall, I had fed the colonies containing imported queens, profusely with it, to start the queens to laying, and these have lived, while others have died. Again; bees purchased late in the season in box hives, have died with dysentery badly, and they did not have a particle of grape sugar.

THE demand for the cold blast smokers seems astonishing. Although a room full of hands are working on them constantly, we have hardly been able to keep up with the demand.

As every room in our large building is occupied, it looks now almost as if we should have to build another in which to make smokers. There is a steady stream of orders for dozens and half dozens, from those who have bought samples.

ABOUT the middle of Feb., Mr. J. Y. Detweiler, of Toledo, O., paid us a visit, bringing some sheets of tin foil. These were dipped in wax, and rolled in fdn., which, he now assures us, is a perfect success. I have no doubt but that bees will build combs on

this, but I do not quite like the idea of metal at the bottoms of the cells, and the extra weight it gives. It is, of course, proof against sagging. I shall have to caution those having mills against such experiments, for it will spoil or injure rolls of any softer metal than copper.

MR. A. G. Hill, of Kendallville, Ind., made us a pleasant visit a few days ago. Friend Hill has a bee-hive factory, but he only makes one kind of hive, and makes that only set up and painted. It would be a very pleasant thing, to run a shop in that way, and I think we might make the one hive very cheap. Friend Hill has a patent on the farmer's honey box I illustrated last month and so I have decided not to make them. The patent is only on the idea of separating the box into sections. He has a patent on his hive also, but is very frank in saying he would have been better off, had he never had anything to do with patents.

FOUNDATION STARTERS FOR COMB HONEY.

A FEW days ago, I found a thick hard piece of fdn. in some comb honey on the table. I cut off the honey, washed the fdn., and found that it was some of our thinnest drone fdn., and the bottoms of the cells, were thinned down as thin as where there was no fdn. at all. The wax that made it cut hard was in the walls, which were nearly, if not quite, of their original thickness and color. The bees, in this case, had only attached the honey to it, and left the walls without drawing them up. The section was one of a lot that were filled by feeding clover honey in Oct.; the weather was so cool that they evidently had been unable to work the wax. To guard against the possibility of such work, we are making both the bases and walls very light; fdn. for brood combs must of course be heavier.

A GREAT many are going into the business of furnishing bee-keepers' supplies, and while I am glad to see it and am willing to extend a helping hand, I am really afraid some of us will get into trouble. Prices have been cut down until I find it next to impossible to give a discount further than that given on our price list. These hive-making establishments are an excellent thing, to furnish supplies for a neighborhood, and thus save expensive freights, besides giving the masses of people the benefit of low prices. Let us be civil and pleasant even if others do agree to work for less pay than we can afford to. We cannot all of us agree to sell lower than anybody else, and so I think it will be well to stop before we get down to a price that is ruinous. We do not want to see other's in the same line of business with ourselves get into trouble; do we, boys?

WEAVING wires in a frame, to support the fdn. (as given in Oct. No.) can be done rapidly and at a small expense. Fdn. can also be pressed onto the wires with but little trouble, but on one side of the finished comb, there will occasionally be found imperfect cells over the wires. If we had a pair of plates as large as the inside of the frame, we could imbed the wires with but little trouble. Mr. Washburn and I talked the matter over several months ago, and decided to make some experiments in due time. I see, by the April A. B. J., that Mr. D. S. Given, Hoopston, Ills., has put the idea in practice, and I really hope he may make it a success.

If I am not mistaken, he will require a very powerful press, to work a pair of dies the size of a frame, and even then, I fear will use so much wax, that his sheets will be rather expensive. Sewing the wires through the frame, I very much prefer to Hetherington's plan of putting in the fdn. with glue.

A CHAPTER FROM REAL LIFE.

ILLUSTRATED BY OUR SPECIAL ARTIST.

MR. MERRY BANKS, having read "Blessed Bees" has become enthusiastic on the subject of bee culture. As he has all his life considered that "the best is the cheapest," he decides to have nothing to do with "dollar queens," but he sends \$7.50 for an imported queen in the month of April. She comes to hand all right, and he contemplates her markings and general appearance with much satisfaction.



MR. MERRY BANKS CONTEMPLATES HIS QUEEN, RIGHT FROM SUNNY ITALY.

He goes to his apiary (consisting of one hive), and proceeds to introduce her. While making the necessary preparation, he builds some air castles filled with imaginary swarms of bees, the progeny of this same golden queen, and pictures to himself the satisfaction he will take in seeing them increase and prosper under his indefatigable care. He also thinks of the pride he will take in showing his queen to his friends, Brown and Jones, when they come round some evening to see how his strawberries, tomatoes, etc., prosper.

After the lapse of 45 hours, he proceeds to open the hive and release her, but, to his dismay, instead of going down among the combs, she takes wing and soars aloft in the balmy air.

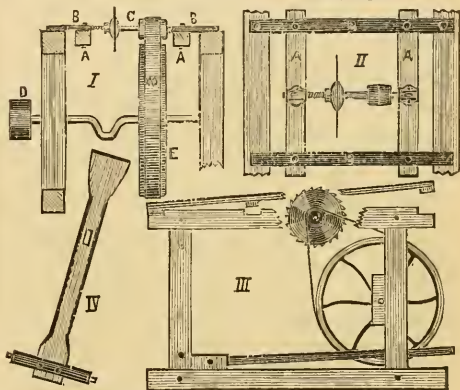


AS HE SEES HER RISE HIGHER AND HIGHER AT EVERY CIRCUIT SHE MAKES, HE THINKS OF HIS \$7.50.

He also thinks of several other things, and wonders if it would not have been well to have used a cheaper queen until he had had a little more practice, and resolves that if he ever gets hold of her again, he will take the scissors and spoil her "flying apparatus," even if it does spoil her "fair proportions" somewhat.

SMITH'S FOOT POWER BUZZ-SAW.

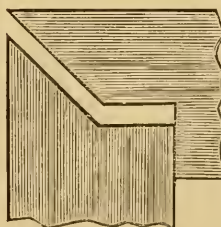
SO many questions have been asked in regard to this, since the notice on page 105 of last month, that we had friend Smith furnish us the following views and measurements. In the drawing below, we have a sectional side view, fig. I, a sectional end view, fig. II, a sectional top view, fig. III.



SMITH'S FOOT POWER BUZZ-SAW.

The frame is 3½ ft. high, 3 ft. long, and 2 ft. 8 inches broad. The diameter of the fly wheel is 3 ft. 2 in., and its weight 100 lbs. The size of the pulley on the saw mandrel is 3 in. The belt is 2 in., oak tanned, and cost him 15c. per foot. The shaft to the balance wheel is prolonged, and carries a pulley, D, 9 inches in diameter, for attaching power. Fig. IV is the treadle. I presume a mechanic will readily understand the other parts by the drawings. The frame is to be made of some hard wood, and the dimensions of the stuff are not at all important. This saw is one of the slow motion saws. A large saw, 8 or 10 inches in diameter, is better, for it gives greater speed to the rim. I am inclined to think this slow motion will not give a very smooth cut.

OUR NEW BEVELED CORNER.



Since the invention of the mat for covering the frames, we have made the Simplicity hives with the corner joint like the cut opposite. It presents the same finished appearance as the straight bevel, and, with proper machinery, is little, if any, more work to make. It also makes a stronger corner, when thoroughly cross-nailed.

THE COVERED SIMPLICITY FEEDER.

NOW, Novice, don't you think I deserved a little credit as an inventor of the bee feeder illustrated on page 82? Mr. Gray has the necessary tools to work with, and he has put "my idea," as you called it, into a better form; but I think he will admit that the principle is the same.

FRANK MCNAY.

Eau Gallie, Wis., March 10th, '79.

I humbly beg your pardon, friend M. When Mr. Gray was at work at the feeders, I thought I had seen something similar; but on looking over our "museum," as the editor of the *A. B. J.* pleasantly terms it, I could not find what I wanted. It was probably lost when we moved. I now find the following letter in regard to it, and a note on the margin to the effect that I gave you one year's subscription for the idea.

I have invented a feeder which I think, if properly made, will be more convenient than any we have used. I will send it to you by mail. It is the only one I have made, and as I had not the necessary tools, it is not very perfectly made. I had no 2 in. lumber, and was obliged to nail 2 one in. boards together. As you will be obliged to tear the bottom board off to see how it is made, I have only tacked it on. It should be well nailed on, and then waxed inside. Please examine it, and if you think it is not practical, or that it is an infringement on your Simplicity feeder, you may reject it, at once.

This feeder is to be placed at the entrance, with the edge having 2 slots next to the entrance. This will close the upper slot, which is only to let the bees pass from the first slot over the first partition into the second slot, where they take the feed which passes under the second partition, through a slot too small to admit a bee.

FRANK MCNAY.

Eau Gallie, Wis., Nov. 19th, '78.

The idea was suggested to Mr. Gray, by a customer's ordering some covered Simplicities. As Shuck's "Boss" feeder was at hand, we looked it over. It contained 7 pieces, where one single block of wood would answer. It also allowed the honey to come right on the backs of the bees when filling, and here is where the most valuable feature of your invention comes in, friend M: viz., introducing the food so as to have it rise up from the bottom. The tin over the auger hole, in the "Boss" feeder, cannot well be a perfect fit, and security against robbers, as is the one I devised to work in a saw cut, inside of the cover. Mr. J. C. Dickerman, Hudson, Mich., sent a most beautiful form of Simplicity feeder a long time ago, having the cover of glass, that the bees might be seen at work, and to indicate when the feeder was empty. This feeder is precisely a "Boss" feeder, only that the auger hole was at one end. This feeder is also made of a single block of wood, and it would have been engraved at the proper time, only that I then decided it was too complicated and expensive. You can get just as many patents on such things, as you have money to pay for, but they will no more stand law, than will the foolish claims some of our friends have been making on smokers, extractors, fdn. machines, and the like. I am sorry to speak thus, but why will you waste your time and strength in trying to monopolize the rest? Since the time when Wagner's patent on fdn. proved so futile, patents on bee fixtures have fallen to the ground one after another in a way that should convince any one, that I do not speak blindly; your patent claims are all beside me, in the Patent Office Gazette, and in the same room are bee books

and journals for more than a hundred years back, besides the models and letters that have been accumulating on my hands.

GRAPE SUGAR. IS IT PROFITABLE FOOD FOR BEES?

AFTER reading all the comments on glucose, grape sugar, and honey and candy adulterations, that have greeted my vision for the last year or two, and after using about 100 lbs. of grape sugar in my apiary last autumn, I have arrived at the conclusion that the use of grape sugar by the apiarian is neither profitable nor advantageous. I was induced to try it on account of its cheapness, and apparent adaptation to bee feeding (according to articles that appeared from time to time in *GLEANINGS*), not for purposes of adulteration, or for storage in surplus boxes, but simply for bee feeding in time of honey drouth.

I found last autumn, out of 71 colonies in my apiary, 9 that were short of food and required from 2 to 16 lbs. each to give them a supply of 20 lbs. for winter, while several other colonies needed a few pounds each to render them perfectly safe. I determined to try grape sugar, on account of economy, and procured 100 lbs. at an expense of \$5. I used to dissolve about 10 lbs. at a time, in a small boiler, and then add about 10 lbs. of honey, and feed the mixture.

The bees stored it readily, and capped a large portion of the food before winter set in. I thus fed up all my weak colonies, and felt confident of triumph. The cold weather following and chilling some of the weak colonies, determined me to remove them into the cellar. This however did not save them, for 3 of them died outright, and the others became so weak that I have united 2 or 3 into one, thus reducing my number below 60. Some of them also showed signs of dysentery.

But what particularly convinces me that grape sugar is poor food for bees is the fact, that nearly every frame of the colonies to which I fed this mixture, contains, to-day, in the bottom of nearly half the cells in each comb, the crystallized portion of said food, so hard indeed that one can scarcely cut it with a knife. What the bees will eventually do with it is yet to be determined. Some of said bees would probably have died, had they been fed only with pure honey, as they were too weak for a severe winter campaign; but here I stick peg No. 1, in condemnation of grape sugar for bee feed in winter.

Again; it is no cheaper comparatively than the best coffee sugar, for chemists universally maintain that 3 lbs. of grape sugar contain no greater quantity of saccharine matter, or sweetening power, than one pound of coffee sugar, and the taste alone of dissolved grape sugar, compared with honey or pure syrup, is sufficiently insipid to warrant its total condemnation.

I was at first disposed to think favorably of it, and have given it a fair trial; I have suffered, although not severely, for it, and can see no expediency in its use, but much injury from its abuse; therefore, I desire every bee man to record his testimony and his vote upon it.

S. W. SALISBURY.

Kansas City, Mo., March 17, 1879.

You say you bought this, friend S., for using in time of drouth, but if I am correct you have given no report of it for this purpose. Your bees will take every bit of the hard sugar out of the cells, as fast as they need it, in warm weather. To be sure the grape sugar, like honey (which is principally grape sugar), has less sweetening power than cane sugar, but does it follow that it has also less nourishing power for bee food? Are not you, too, friend S., accepting books rather than your own experiments. If you, or others, from the statement given above, think grape sugar killed your bees, I would advise you, by all means, to discard it.

Bees may have dysentery when fed on a mixture of honey and grape sugar as they do with honey alone, but I have always considered both grape and cane sugar safer than honey in this respect.

Heads of Grain, From Different Fields.

PAINTED MUSLIN FOR ROOFS FOR HIVES.

WE, Mr. Langstroth and I, have a chaff hive of my own make, called the Langstroth Chaff Hive (which it is), standing side by side with one of yours. We have watched them closely all winter, after rains and severe freezing, and we find that, in spite of all your care in putting tin strips in the roof, the dampness will draw in at the top and eaves, while ours will be perfectly dry. Our roof is made of wide boards $\frac{1}{4}$ in. thick, on a frame, the boards being neither tongued nor grooved, is very light, and just covered plainly with common, coarse muslin, painted 4 coats (2 coats ochre and 2 coats white lead), without any eap board, and it makes the best roof I ever saw. I think, if you try it, you will find it less trouble, cheaper, much better, and will never leak a drop. I have had nearly all my common hives covered with muslin for the last 5 years, and they have never leaked a drop, while nearly all of the flooring roofs will leak at times, in spite of putty, paint, or any thing else.

My bees are all in good condition, with capped brood in from 2 to 3 frames, and some young bees out. I use the chaff stuffed separators, and chaff cushions, and, in the fall, I rake the leaves from the yard, close around the hives, and set corn fodder closely around 3 sides, and have never lost any.

D. A. McCORD.

Oxford, O., March 24th, '79.

Your kind of a roof, friend M., has been recommended for many years, and the only objection I know of is the cloth gets rotten, as it were, and liable to be torn. For hives that are stationary, it may do very well, but it is not sufficiently substantial to bear handling much, especially such handling as they get in shipping. If boards are not sufficient, I would use tin, as we now furnish it for the chaff hives.

GRAPE SUGAR.

I used grape sugar last spring to feed my bees; my family ate of it also. I saw no harm with either. My bees, 8 colonies, increased to 23, gave me nearly 1,000 lbs. of honey, and are now on their summer stands, where they have wintered all right and healthy. I consider grape sugar harmless for either man or bees, and had not knowing ones raised the awful cry, bee men might feed their bees on it without harm to any one. But the cry has gone out, and honey consumers have become alarmed, and dishonest men have learned that they can adulterate honey with it.

Grape sugar is doing much more harm in injuring the sale of honey than it can possibly do good in feeding bees, therefore we should do our best to stop the use of it, and also destroy every other chance to accuse bee men of adulterating honey.

Mendon, Mich., March 15, 1879. E. B. SOUTHWICK.

We can adulterate honey with cane sugar also, friend S., and on that account shall we discourage keeping sugar in our houses? If grape sugar is perfectly wholesome for bees, as you state, all the objection that we have to it is its cheapness. I am afraid when I am doing wrong, but I am not afraid when I am doing right. I have no fear that I shall ever have trouble in selling my honey, because I use grape sugar for feeding bees, in times of scarcity. I am not at all alarmed by the hue and cry that has been raised; if we are doing right in God's sight, it cannot harm us.

AN A B C SCHOLAR'S REPORT.

A year ago I transferred my 6 colonies into Simplicity hives, following directions given in GLEANINGS. I increased by dividing and buying some to 38 swarms, which I have wintered on summer stands,

losing but 2; so I feel quite satisfied. My bees are now doing well, and have plenty of brood and honey. I hope to be able to make a good report this season, for though I may have less enthusiasm, I certainly ought to have more knowledge.

A few of us take all the bee papers; but we borrow and lend a little, these hard times.

Huntington, L. I., Mar. 18, '79. F. W. BURGESS.

This is right. "Do good, and lend, hoping for nothing again." Luke 6; 35.

By the way, I was one of Mrs. Cotton's victims to the tune of about \$25.00 for one swarm of Italians. They lived 2 years but never swarmed or made any honey, and then died after they had Italianized my bees somewhat, for they were nothing but hybrids when I got them. So you see I made a poor beginning with Italians. I had no bee moths until the Italians came.

LUCIAN FRENCH.

Dexter, Maine, March, 11, 1879.

This does not look much like \$50. from every hive each season, does it, friend F?

THE "BOSS" BEE VEIL.

It is made of fly netting, as most of them are, with a thin plate of mica sewed in the front, at such a distance from the top as will bring it before the eyes, when placed on the head. You have no trouble in finding eggs or brood (provided there are any) with this veil, and you can see about as well with it on as with it off, which certainly can not be said of the other kinds of veils. The mica should be thin—the thinner the better.

R. NICKERSON.

Norwalk, Conn., Mar., 10, 1878.

Since reading the above, I have procured some plates of mica, and had one sewed into a veil. If split too thin, I think it would be apt to get broken or cracked, and if left thick, it is pretty expensive. You are right; one can see eggs or brood almost as well as with no veil at all, which cannot be said of the other kind. If these veils, which we can send by mail for 75c., prove to be practical, I will pay you, too, friend Nickerson, \$5.00 for your suggestion.

A FOUNDATION MACHINE FOR 25 CENTS.

I have not gone crazy this month because of that California honey plant, but am perfectly sane. Listen and see if I am not.

I took a couple of small blocks of hard maple, filed a nail off, to make grooves for the walls, and in a short time, by using my hammer for a lever, I had my miniature press done. I shaved a thin bit of wax off the cake, moistened my press, laid the wax on it, hit it with my hammer, and the "decision" was made; it can be done. I send you the bit of fdn. to look at. The cells are too large, and the bottoms flat; but, if it can be made in large cells and flat bottoms, it can be in small cells and concave bottoms.

WM. L. KING.

Benton Harbor, Mich., Mar. 21, 1879.

The fdn. is all right, and will work, without any doubt whatever. It will be much easier to make flat bottomed cells, for then they need not necessarily be of exactly the same size. A nail filed off sharp will do, but a nice steel chisel of just the right width, will be better, driving it deeper into the wood. You can have higher walls, if you prefer.

A very shallow wall will be easier to work, and will probably be just as profitable for the bees. When you get plates of wood to work nicely, you might try a pair of rolls. The sheets are to be dipped in the usual way, of course. The idea that there is, or can be, a valid patent on flat bottomed fdn., is ridiculous. The patent office people, in their ignorance or carelessness, may grant one, but it will amount to even less than did the Wagner patent.

SAWDUST VERSUS CHAFF.

I have 114 hives now, 84 in the cellar and 30 out in double hives. I took those in the cellar out last week, and anxiously looked into them, and into the out door ones. All looked fair, but the examination was decidedly in favor of the out of door wintering.

I have made double hives somewhat after your pattern, but cannot go the fixed second story. I take it off in winter, and fill up with sawdust. By the by, I cannot agree with many as to the superiority of chaff over sawdust. I cannot see that my sawdust is one whit damper than the chaff (I have both), neither does my observation lead me to believe in the necessity of leaving the cracks between the siding open, for the purpose of drying out the sawdust or chaff.

The best results I have got as yet, with regard to both the dryness of the packing and the appearance and dryness of the bees and combs, have been in hives constructed as follows: the outside hives are made, in every respect, like your chaff hives (for which idea we may all thank you), except that the roof is made to cover the whole hive; thus I can get at and examine or remove the sawdust. The outside shell is lined with tar paper, effectually excluding air and wet from the outside.

The inside hive (one story with movable super) is made as usual, of inch lumber (I tried some of 4 in. siding but not with as good results), thus effectually preventing the dampness from the hive from getting to the packing between the side of the hive and outside case.

For winter, I just lay a cloth over the frames, and put on 8 or 10 in. of sawdust. In one of the heavy snow storms which we had this winter, considerable snow blew in under the roofs, on to the sawdust. I let it stay there and melt, for a test. It has almost completely dried off. As far as I have seen, I have found no packing which has got damp from the inside of hive. The moisture from the bees passes, without condensing, up through the covering material, which fact is proved by laying a board on top of the packing. In cold weather, it will be coated with frost on the under side, by the moisture's condensing on it.

PREVENTION OF SWARMING BY REMOVING THE QUEEN.

Now, I should like to have your opinion on the following point. Suppose I take a hive, when full of brood and bees and in condition for swarming, and remove the queen (say kill her), and in 8 days, go through the hive, and pinch off all queen cells but one. Is that hive pretty sure not to swarm for 7 or 8 weeks from the time of removing the queen? and will the bees, during that time, continue to work with the same, or nearly the same, zest as if they had a laying queen? WM. L. KING.

St. Joseph, Mich., May 14, 1878.

I fear very few will agree with you in thinking sawdust better than chaff. I have made a few experiments, with very fair results in favor of sawdust.

If you remove the queen when the swarming fever is under way, the colony will almost invariably stop work, until they get a new, laying queen; it stops the swarming, but it is generally an awfully expensive proceeding.

GRAPE SUGAR FOR SUMMER, DURING A DEARTH OF HONEY.

Our bees gathered but little honey last spring. Many people "robbed" their bees of what little they had, and then they died before fall. With the movable frame, and a barrel of grape sugar I saw the point, fed my bees nearly all summer until Aug. 15th, doubled my colonies, got considerable fall honey, and have now all my colonies in good condition, save 2 weak ones. Many of the old box or gum hive colonies of my neighbors "went the way of all the earth." I exhorted some to feed their bees, but as they were flying in and out of the hive, the usual reply was, "They are working and it is no use to feed them." My grape sugar saved mine, and did them no harm. We have had glorious weather for 3 weeks, and my bees are fast spreading themselves; i. e., the queens, with my help, are spreading the brood.

N. C. STEELE.

Kossuth, Miss., March 15th, '79.

I started in May, '78, with about 130 swarms, and got 7600 lbs. comb honey in section frames, and increased about 60 swarms. The largest yield from one hive was 168½ lbs. The largest amount of honey and increase from one was 2, increase, and 172 lbs. honey (the honey made by the 3 swarms). One new swarm, hived July 31, made 150 lbs., besides filling the hive with empty frames to start with, except one inch strips of fdu.

L. T. HALL.

Aurora, Wis., Feb. 3, '79.

STIMULATIVE FEEDING.

Will feeding bees with brown sugar and ½ flour, mixed to a thick syrup answer? My bees eat it before anything else.

JOHN H. PERRY.

Shirtsville, W. Va., Apr. 13, '79.

To be sure, it will answer; my first experiments with flour were in that way, but I make the flour candy, because it is so much handier, and can be given then in a slab so as to furnish them just the proper amount every day, for a month or more, without any labor or fussing. Feed brown sugar only in spring or summer; it will produce dysentery if used for winter stores.

VENTILATION; MORE AIR.

Last summer in June, 2 colonies died off in great numbers. I asked you for a remedy. After trying several things in vain, I enlarged the entrances to give them more air, and that stopped the disease at once. This remark may be of use to some brother bee-keeper.

G. WENDELKEN.

Marietta, O., Mar. 24, 1879.

I should hardly suppose too small an entrance would cause the bees to die off in the way you mention, but still, it may be. The Simplicity hive is especially adapted to giving them an entrance of almost unlimited size; I have often given very strong colonies in a 3 story hive, an entrance of 3 inches, the whole width of the hive. They would then alight right on the combs, without touching the ground at all.

MY TROUBLES IN BEE-KEEPING.

1st. Stings. Hybrids are awful. 2d. Swarming. I can't control it, and do not want increase at the expense of the honey crop. 3d. The everlasting robbing. My bees never forget it, all winter; but if a hive or two be raised, the whole yard is in a roar, and that puts me in a roar too. 4th. Badly made hives, which leak in spite of me, and let in bees unless I look mighty sharp. 5th. I don't get the big piles of honey "that we read about." 6th. Honey is so low priced now. 7th. Your simplicity smoker is a failure with me. 8th. It is hot, particular, and dirty work anyhow—this bee business; but never mind for all that.

N. C. STEELE.

Corinth, Miss., Mar. 24, 1879.

COLD BLAST SMOKERS.

I don't claim to know it all, and I have not kept bees very long, but I have often reproved others for putting the tube of the smoker right into the entrance of the hive, for the reason that, when the tube of the smoker is brought so nearly into contact with the bees, there must be a great quantity of hot air and hot smoke, mixed with some sparks of fire, blown into the hive amongst the bees, which cannot do otherwise than irritate them.

F. F. FELL.

West Baton Rouge, La., Mar. 11, '79.

BEE CAVES.

A neighbor near me bought a hive of bees last summer, and as soon as they were turned loose, they came directly to my place, and the little fellows loaded their legs so that it seemed hard work to fly.

I see you speak of bees in caves; they do work in caves, for I have robbed them of barrels of honey at a time. That was on the Devil's River, Texas. I did not know anything about their work, whether they had any queens or not, but I do know that they had lots of honey in their caves.

H. H. C. BREECE.

Greenwood, Col., March 23, 1879.

ADULTERATION OF COMB HONEY.

A. B. J. must have been hoaxed in regard to the seizure of Thurber's sections; it never took place. One is in the hands of Professor Redwood, Public Analyst for Middlesex, and he told us, on Wednesday last, that, judging by taste and smell, he should decidedly say the contents were not honey, but that it had answered every chemical test for honey that he knew of; he had, however, not done with it and he still thought his taste and smell could not so decidedly err, but, up to that time, he could not say the stuff was adulterated. The winter has been very fatal to bees here; most of their stores are consumed, and it is too early to feed.

JOHN HUNTER.

5 Eaton Rise, Ealing, London, Eng., March 3, '79.

If it is in the power of a chemist to decide, it seems probable that very little adulterated comb honey has ever been on the market; it *may* be there has never been a lb. offered for sale.

BARNES CRANK ATTACHMENT TO THE FOOT POWER SAW, ARTIFICIAL PASTURAGE, &c.

I am pleased with that saw set; it is the very thing that I wanted. I am making honey boxes with the Barnes foot power and the hand crank attachment. I could not get along without it.

I wanted just 55 colonies to start with in the spring, and packed that number, thinking I could winter them as safely as my sheep or other stock; but, alas! I find 2 are no more, and one of them had such a nice Italian queen that I raised myself!

The honey is all gathered here in a few weeks of a long season. I am well aware that bees only do their best, in times of general prosperity; now, I want to know when to sow rape or some other honey bearing plants, in order to bridge over these periods of dearth and idleness.

JACOB CHILDS.

Amherst, Wis., March 23d, 1879.

I well know how desirable it would be to bridge over these seasons of scarcity, but I fear it will be a difficult matter, to get up a field of rape, or anything else, that will do it.

I do not wish to discourage such experiments, but I do not wish you to get too enthusiastic, and then be disappointed.

Bees have suffered severely here this winter. Those however who prepared for winter properly have met with but little more than usual loss of light swarms; but those who still adhere to the old style "no protection principle" of wintering have met with severe losses. Well, the careful ones will have all the more room. We have at last a law to "Prevent the Adulteration of Honey." Let us hope it will be effectual.

WILLIAM HARWOOD.

Newberg, Mich., March 15th, 1879.

Good for Michigan! Now hunt up the culprits, friend H., and do not be behind about putting your law in force.

BEE KEEPING IN VIRGINIA, SOURWOOD HONEY, &c.

I am very well satisfied with my last season's work, and could have done better, but run short of hives, sections, &c. I sold my honey at home and at Danville, at fair prices; for that shipped, parties paid for boxes and shipping. I sold several lots to parties here who shipped it to their friends at a distance as presents, and for the novelty of the thing. The honey was the prettiest I ever saw; the comb and honey were made entirely from the sour wood. The comb was very white and tender. My bees have wintered well on the summer stands. I have lost none yet. They have been busy for a week gathering pollen and some honey. I have lost only one stock by death and 2 by going to the woods in the 4 years I have been keeping bees. Last summer I worked 54 colonies. I started in the spring of 1875 with one, very poor swarm, in a log gum, had only one swarm in 1876, and run up to 10 in the spring 1877, one of which was robbed and died, leaving 9. I worked that year to prevent an increase, but they run up to 21. All wintered well, so that in the spring of 1878 I commenced with the 21, and worked

to prevent increase, but they run up to 54, after losing 2 Italian swarms that went to the woods, and doubling up 10 others. Last fall, to reduce my numbers, I doubled down to 21. I am forced to do this for the want of time. In the spring and fall, at the very time my bees need attention, the business in my office is pressing. I commenced for curiosity, amusement, and to supply my table, and would like to keep within these bounds; but if I do I have got to learn some new way of doing it.

In August, 1877, I bought of Dr. Brown, Ga., an Italian queen, the first I ever saw, and introduced her without difficulty. Last season they swarmed 8 times; I saved 6 swarms and 2 went to the woods as mentioned above. I find them more troublesome in hiving than the blacks. One of those that went to the woods left a frame with eggs and young bees, that I had given them. A black swarm coming out, I put them in the same hive, and they went to work. Nearly every Italian swarm, I would have to rehive before I could get them to stay.

Yours respectfully, L. G. RUCHER.

Patrick C. H., Va., March 15, 1879.

TRIALS IN QUEEN REARING.

I have tried queen rearing on a small scale this year, but have not been very successful. When I formed my nuclei, I did not put enough bees in them and all the queen cells were chilled except one (the weather was a little cool), so but one out of 5 hatched. I then put in another lot of cells, but 2 of the nuclei had by this time got fertile workers, and would not accept them; so I did not find it as easy to rear queens as I had imagined.

CLINT BYEER.

Glasgow, Ky., June 1st, '79.

MICE, LOOK OUT FOR THEM.

You can give me a small corner in Blasted Hopes. I packed 23 swarms away for winter, in hopes that I would be able to winter them all; but the cover of one of them got moved a little to one side, the mice got in, and yesterday, when I overhauled them, I found a nest of mice instead of a live swarm of bees. So you see, my hopes are blasted just a little.

WM. L. KINO.

Benton Harbor, Mich., March 7th, '79.

UNSEASONABLE SWARMING.

The Corey smoker you sent me is a gem. I sent for it for a neighbor. We feel like throwing away ours, and sending for a Corey.

A neighbor had a colony of bees swarm on the 14th of this month and go off, leaving a colony still in the hive. The day was the warmest of the month. Is this not rather unusual? What could have been the cause?

J. B. COOPER.

Coles Station, Ill., March 24, 1879.

A natural swarm in March is rather an unusual occurrence, and the only one I ever heard of before was where the bees had secured stores largely, by robbing other hives that had died out.

Was not something of this kind the case with the one you mention, friend C?

DYSENTERY CAUSED BY DISTURBANCE IN COLD WEATHER.

I want to tell you what success I have had in wintering my bees.

I started into the winter with 26 colonies and have lost only one swarm yet. I had them packed in chaff hives of my own make, with 3 inches of chaff on each side, a 3 inch cushion at each end, and a 4 inch cushion on top. The swarm that I lost, was lost by my own fault. I looked into them perhaps 12 to 18 times through the cold weather, and I think that was the cause of their death. Disturbing them so often threw them into dysentery. The balance of my bees look all right.

C. E. WALDO.

Grand Ledge, Mich., March 23, 1879.

We have pretty fair evidence that disturbing bees in cold weather sometimes brings on dysentery, but it is equally certain that it does not always have this effect. When any disturbance—such as moving them to a new location—causes them to fill themselves with honey, this honey sometimes causes

them to secrete wax and start brood rearing, and, at other times, to be taken with the disease as mentioned. I am strongly inclined to think the quality of their stores has something to do with this.

DRIVING BEES OUT WITH THE COLD BLAST SMOKER.

You did not answer my inquiry in regard to your plan of getting the bees out of the old box hives.

Well, Mr. Root, I got your Simplicity Smoker in good condition, and found that it could do the driving better than Root, Mitchell, or any other man. All I had to do was to take the top board off the T. B. Miner hive, and puff the little rascal at it; I turned the hive over on its side, and you should have seen the little fellows break up camp and leave. Now, I ask no man for information on driving out bees. You will be safe in recommending the smoker to drive out the bees; it will do it 5 times out of 4. G. A. JACOBS.

Boalsburg, Pa., March 24, 1879.

THE REMAINDER OF THE GRAPE SUGAR.

A few days ago, I looked at the two remaining hives to which I gave frames of grape sugar last fall. The first one was in almost the same condition as those mentioned in a previous letter. [See p. 86, Mar. No.] In the other one, the sugar had been placed to one side of the hive—one comb between it and the hive—and had not been touched by the bees. It was hard and dry. I doubt whether the bees could have eaten it, if they had desired to do so.

E. A. GASTMAN.

Decatur, Ill., March 25, 1879.

FAITH IN HUMANITY.

While at Almont, Mich., a little over 4 years ago, I bought some books of you, on which I still owe you 25c, which I enclose with interest. Please have a specimen copy of GLEANINGS sent to—and—

J. E. L.

There, friend L., I thought you would send it some time. It is hard for me to believe that any one of you really means to keep what you are satisfied belongs to me. You have sent interest for the whole time, and one cent more. It is a trivial transaction, but it has raised my faith in humanity a great deal. Yesterday a printer came and asked to set type enough so that he could buy some crackers and cheese, as he had not a copper to get any dinner. It was dinner time, but he said he could work at the ease while the hands were away. I gave him some money and told him to get his dinner first and he could then work better. The boys laughed at me for my faith that he would come back; he has not come yet, but I think he will sometime.

It would seem that we hardly need more than your A B C, it is so full and minute in everything pertaining to bee culture. J. W. MANGRAVE.

Salem, Neb., Mar. 25, 1879.

SUPERSTITION ABOUT BEES.

I would like your opinion in regard to the old story of telling the bees when a person dies. A neighbor of mine says, when her uncle died, the man that laid him out told them, if they did not go and tell the bees, they would die or go away. They did not do so, and, sure enough, the next morning the bees were all dead—2 colonies—and it was in the middle of summer! she says she saw it herself. How do you account for it? Please let us have your opinion on it. You know Whittier's poem on the subject.

Ledyard, N. Y., Mar. 17, '79

S. MINCHIN.

If your neighbor saw the bees dead, I suppose there is no question but that they did die. It may be, they starved to death, as bees sometimes do, even in summer time; but, even if they died with plenty of food and every thing, apparently, as it should be, I should conclude I did not know why it

was, but never that the death of their owner had anything to do with it. I can't help what the poets say. There is sometimes much more poetry than truth in their verses.

THE LADIES' DEPARTMENT.

That letter of sister Axtell's is a very excellent contribution to GLEANINGS, and will, I think, encourage many a timid woman to undertake bee-keeping. Her bee-dress, too, is just the thing. I get over her objection to saw dust by using screened *factory chinders* around my hives. They keep the grass down, and after they get a rain, make clean walking for men and bees, and queens will not readily be lost on them. The coarse part makes good roads elsewhere.

THAT "BLESSED BEE" MAN.

I think the public owe you a vote of thanks for your honest review of "The Blessed Bees." Many a man would have been saved years of vexation, and hundreds of dollars, had some one been honest enough to "stamp" on *Ten Acres Enough*, in the same way. "Honesty is the best policy," to say the least of it. G. W. THOMPSON.

Stelton, N. J., March 15th, 1879.

FLOUR CANDY FOR BEES.

A tin pan, a spoon, 5 lbs. standard A, nearly a pint of boiling water. Boil slowly until it is "stringy" when allowed to drop from the spoon; let a few drops fall into a dish of cold water; after a half minute, if they hold their shape pretty well, and can be handled without sticking to the fingers, it is ready to take off. After it has been taken off, stir in 5 heaped tablespoonfuls of wheat flour; continue the stirring till it begins to get thick, then pour quickly into saucers or tin pans. If the stirring is continued just a little too long, we shall have a lot of crumbling stuff that must be worked over. Our confectioners at Steubenville make a bee candy that becomes sort o'mellow after it is a few months old. I think it would be good for queen cages.

R. M. REYNOLDS.

East Springfield, O. March 6th, 1879.

Our candy maker says you use a great deal too much water; it takes too much time to boil it out again. We have tried stirring the flour in, after the candy is done, but find that it is more labor than the plan given in A B C, and it is difficult to keep out lumps of flour. I do not think you use flour enough to get the best results in brood rearing. Please send me a sample of the bee candy that becomes mellow by age.

SIMPLICITY HIVES VERSUS A DEEPER FRAME FOR WINTERING.

I send you my report for 1878, also some facts, to show the superiority of Simplicity hives for wintering. My 4 colonies in the spring increased, by natural swarming, to 14, and gave me 500 lbs. surplus comb honey—100 lbs. in sections at the sides of the hives, and the remainder in 10 lb. boxes placed on top. This was mostly clover honey.

I prepared them for winter by making frames of lath; on the sides of these frames I tacked ducking, and filled them with cut straw, chaff not being obtainable. These cushions I put in place of the broad frames that held my section boxes. The caps on top of hives, I also filled with cut straw. Thus surrounded, they remained on their summer stands, and come out this spring in splendid condition. Every hive seems to have more bees than in the fall. Fully half of the bees in this portion of the State have winter killed. One of my neighbors had 40 colonies in the fall, half of them in Simplicity hives, and the other half in American frames. He lost 18 in the deep frame hive, and but 2 in the Simplicity. They were placed in a nice, single walled, octagonal bee house, but not protected by chaff in any way. Another neighbor bought 14 stands, last fall, 13 of them in deep frame hives, and 1 in a Simplicity. The 13 all died, and the 1 came through all right. These were placed in a house for protection, but had equal advantages. I find that those left on their summer stands, even without protection, show a much smaller percentage of loss than those that have been housed. JOHN C. FOWLER.

Ashkum, Ill. March 18th, 1879.

DISTANCES WHICH BEES FLY.

The following, cut from a newspaper, was sent us by a correspondent:

"Bees often make long journeys in search of food. A bee owner in the West, thinking that they perhaps visited the clover field of a friend 40 miles away, sprinkled their backs with flour one morning as they left their hives, having previously requested the friend to watch for them. A telegram came during the day, saying, 'Plenty of your white jacket bees here.'"

This is evidently a mistake. It should read, probably, 4 miles. Our Italians have been found $3\frac{1}{2}$ miles from home, and this is the greatest distance we have ever known them to go. Bees are often seen in the fields with a white substance on their backs, which comes from the blossoms they have visited, but which much resembles flour, and has sometimes occasioned mistakes in estimating the distances traveled by them, in the way mentioned above.

BEES LOST ON THE SNOW, AND "SALTING" THE BEES.

I notice that it is customary for some bee-keepers to spread straw in front of their hives during warm days, when there is snow on the ground, so that the bees can rise from it and not be chilled by the snow. Do you think there is any advantage in it? Why do you wish to make bees eat salt? H. P. NICHOLS.

Bridgeport, Conn.

I do not think there is any especial advantage in it, and I do not like the straw littered about the apiary. We do not *make* the bees eat salt; we only allow them to satisfy their natural craving for it, like horses, sheep, and cattle. The evidence lately furnished seems to indicate that they, as well as the animals mentioned, thrive better when given access to it, and it may be they suffer for the want of it. I have just been thinking of putting a judicious pinch of salt into our flour candy. There! no one can get a patent on that now.

TOADS AND WHAT TO DO WITH THEM.

I will now write you a chapter on toads. During last season, I noticed large numbers of toads hopping about my apiary, and having often seen them eat bees, I devised a plan to dispose of them as follows: I made a pair of wooden tongs, and with a deep tin pail, I went into the apiary just after sundown one evening, and in a short time, picked up, with the tongs, 32 toads; and it was not a good day for toad hunting either. Well, what should I do with them? I did not really like to kill them, so I took them to the bridge and dumped them into the Tuscarawas river, telling them to swim for life. About a week after that, I disposed of 16 more in the same way. Who is next? A. A. FRADENBURG.

Port Washington, O., Nov. 3, 1879.

Thanks, friend F.; I commend you for your humanity, as well as for your ingenuity; that is, if you are sure the toads *could* swim for their lives. Our friend, Prof. Cook, would have ignored your wooden tongs, if I know him correctly, and would have taken the toads in his hands with as little scruple as he would newly hatched chickens.

WHAT ONE COLONY DID IN 7 YEARS.

In 1872, I bought one hive, and have made no effort at increase, but have in the last 3 years sold 30 hives at from \$7 to \$10 per hive, and now (March 3d) have 40 good hives. We have had all the honey we could eat, and sold a good many dollars worth, and still my bees are only secondary to my farming.

Last June, my wife's help or that of some of the boys was not refused when I had 3 swarms in the air at one time, and yet I have never but once let 2 swarms get together; but it is lively sometimes. I have sometimes divided.

I. N. COTTON.

Traders Point, Ind., March 3, 1879.

BEES AND HONEY ACROSS THE WATER; HONEY FROM THE HEATHER.

O. E. Wolcott gives, in Feb. No., a poor idea of bee-keeping in this "land of brown heath." True, there are millions of acres of it, but there are millions of bees working on it too, and the honey is generally voted the richest in the world. The trouble is that almost universally the ancient skep and brimstone system prevails with its miserable results. Besides, those of us who know better have two great difficulties to contend with—the lateness of the heather season (middle of August to September) throws us into the short days and early frosts with frequent rain, and the trouble of extracting the honey when gathered. No extractor yet made can be warranted to throw it out; it is too rich for that. I hope to get a chance of sending you a sample.

BEES LOST ON SNOW.

Sow sawdust for a considerable space over the snow and not half will be lost. Their "poor feet" are very sensitive.

FUEL FOR THE NEW SMOKER.

Our favorite fuel is old corduroy or moleskin. It never goes out nor flames up like other rags, and its pungent smoke subdues the wildest "high breeds," as a foreign friend calls them. Do try it.

Blairgowrie, Scotland.

W. RAITT.

Thanks, friend Raitt. I should like to try my hand on throwing out some of that thick heath honey. If the weather, or the room, was sufficiently warm, and the honey not too old, I am inclined to think we could make it come.

CHEAP HIVES.

As you (very unexpectedly to me) published a former letter of mine, in the Feb. No., in which I stated that I could buy Simplicity hives in the flat in St. Louis @ 30c, will you have the kindness to state in next month's GLEANINGS the following, as I am in receipt of postals every day, from all over the country, asking information concerning it.

The firm in St. Louis who offered to make Simplicity hives in the flat, @ 30c each, is Philibert & Johanning, mill men, S. W. cor. of 15th and Market Sts. They are not manufacturers of hives of any kind, hence persons ordering will have to furnish a sample hive, or so much, in the flat, as is necessary to work by, and also order in lots of not less than 25, to secure them at this price.

I am afraid, friend Root, that this looks like taking business out of your own hands, but I should not mention it were it not from the fact that you "brought it upon yourself," by publishing my letter, and because I am confident that, in so doing, you were looking to the interests of your patrons themselves and the community at large, and not your own. By so doing you will lose nothing from me, or my small influence, and I think not elsewhere, in the long run.

I have several things that I want to talk to you about. I feel as though I was acquainted with you and not a stranger as I am, but I have already intruded upon your time too long and will close. Former hives ordered of you are ready to transfer my bees into, painted 2 coats inside and 3 outside, with white lead and linseed oil.

N. H. ALLEN.

Kirkwood, Mo., Feb. 11, 1879.

If anything I sell can be found cheaper than I can furnish it, I hope, friend A., I may always be ready to give you all the benefit of such knowledge. We shall not suffer in the end, by considering the good of others, even if we do lose temporarily. I have sometimes hesitated about advising hives that were offered cheaper, for fear they might not be good ones.

TRANSPOSING LARVÆ FOR QUEEN REARING.

Queen cage is received. Last fall 3 out of 4 of all the larvae which I put in dry cells were removed, even when there were no other eggs or larvae in the hive. It might be more successful earlier in the season. Nearly all succeeded when put where others had been. Italian drones were out the 12th. We have a few sealed queen cells. C. R. CARLIN.

Shreveport, La., Feb. 15, 1879.

A REPORT IN FAVOR OF CELLAR WINTERING.

Nov. 25, 1878, I put into winter quarters, in my cellar, 93 colonies of bees; 21 in box hives, and the balance in Simplicity and Standard hives, and did not move them to their summer stands until March 8th. I have kept bees 7 years, and never had them winter better. Two colonies only have died, and those of starvation. The rest are strong and in a splendid condition. I wintered one colony out doors in the chaff hive you sent me last year, and it also came through the winter as strong and healthy as those in the cellar. More than 50 per cent of bees wintered out doors in this section are dead.

Norwalk, O., March 10, 1879. S. F. NEWMAN.

MELTING DOWN BY CONFINEMENT; SEVEN SWARMS IN ONE, ETC.

I am just a beginner in bee culture. I commenced 2 years ago (1877), by finding a swarm of Italians in a tree. I put them in a L. hive, and increased them to 3, that season. They wintered all right, and in the spring of 1878, I bought 9 more, making 12 in all. I carried one into the cellar to keep it from being robbed, and it being closed up, the combs melted down and drowned the whole colony. Well, I had 11 left, and was a little wiser. I increased them to 32, and extracted 12 gal., and took 800 lbs. of comb honey. I put the 32 in the cellar for winter quarters. Nov. 23, 1878; took them out of the cellar the 6th of March. They came out lovely, without the loss of one.

One man in this neighborhood lost 18 out of 67; he had them in a cellar. There are a good many bees in this neighborhood. One neighbor, with old fashioned box hives and gums, had 7 swarms come out at one time, last summer, and all settled in one pile. He told me he never saw such a pile of bees in his life. He could not do a thing with them. They finally rose and went off in every direction, so he lost all.

So you see at this date, I have 32 to start this season's work with, and I intend to do my best with them.

GEO. W. PENN.

Colfax, Iowa, March 8, 1879.

GETTING THE BOXES TOO FAR FROM THE BROOD, ETC.

In the spring of 1871, I bought one hive of bees; that is, I made a Quinby hive "old style," and had a swarm put in it the summer before. I knew but little about bees, except that my father had kept a few since I could remember until the moths destroyed them. I bought Quinby's *Bee-Keeping*, and with my one hive launched into the business. My object was to have plenty of honey to eat, but my bees increased and we could not eat it all, and people said "What luck Cotton has with bees!"

Now there is one thing that experience has taught me, and that is, that the distance from the hive to the honey boxes is too great in the old Quinby hive, and I am seriously thinking of changing to the Simplicity. Last year, I took the top and honey board from one hive, put on a large box, and took it off in August with 80 lbs. of honey, leaving plenty for winter.

I. N. COTTON.

Traders' Point, Ind., March 17, 1879.

I agree with you, friend C., but the Q. hive is not as bad as some others in the respect you mention. The Am., Gallup, and other deep frames are still worse, although side storing may be so employed as to very much help the matter.

Our swarming time now begins. There are plenty of drones flying now.

CLARA SLOUGH.

Daytona, Fla., Feb. 3, 1879.

HOW TO TELL WHEN BEES ARE ROBBING.

I am one of your A B C scholars, am keeping bees, and have been reading *GLEANINGS*, &c., trying my best to become an adept in bee culture; but now, I guess you will have to put me in the "Growlers" or "Blasted Hopes" department, just wherever you think I belong, for I am discouraged, and afraid I can't keep up in my class; not, however, because my bees have not been doing well, for they have withstood the severe winter well so far, and appear to be in good condition.

But I will tell you why I am discouraged; in Jan. No., under the heading of "How to Know Robbers," we have the following instructions: "A robber bee,

when he approaches a hive, has a sly and guilty look." Further on, we have "hurried and guilty look." Now that may do for some of you amateur bee-keepers, with skillful and experienced eye, to tell by the countenance of a bee whether he is a robber or not, but, for a beginner like myself, it is drawing it a little too fine, and I despair of ever becoming able to distinguish the difference between the looks of guilty and innocent bees.

After carefully reading the instructions on "How to Tell Robbers," I am sometimes as much at a loss as ever, to know whether the bees are robbing or having a frolicsome play. If you can help me out of my trouble, I will be much obliged to you.

Mogadore, O., March 18, 1879. WM. P. MYERS.

It would be strange, friend M., if I would not come to the help of one who lives in the town where all my childhood days were passed, and where fond recollection goes back every time I see the postmark, Mogadore. I did not mean that you were to look a bee square in the face, and try to read in the lines of his countenance, whether he is given to dissipation and loafing, as you would that of a young man, but that you are to judge by his actions and behavior. If he approaches the bees around the entrance cautiously, and jumps back when one attempts to pass the compliments of the day by extending his antennae, you may judge that he is guilty. If he gets grabbed by the wing, and spins around in his efforts to get away, or is "wheeled" back and forth, as it were, in front of the hive, you may know he is a robber. If he stands his ground and seems lost and troubled, but does not try to get away, while the rest gather around and bite and pick at him, you may know he is a young bee that has got to the wrong hive by mistake, which often happens when they first fly in the spring. Where a colony will not defend itself at all, as is sometimes the case, you will see nothing of this; simply plump heavily laden bees darting off hastily, after running up the sides of the hive as I have explained. A few days ago, on going to dinner, I told Will the bees were robbing. He was sure they were not, but I knew they were, by the high key note of the bees that were buzzing about. It was a colony in the house apiary; they were just about as busy as the rest, and the bees were going in and out just about the same. The only way I detected it was by seeing bees crawl up above the auger hole before taking wing. On going closer, I saw that each bee was podded out with honey, until he could contain no more. The next Sunday, I declared that bees were robbing again, but on looking I saw there was no robbing from our hundred hives and over. Next morning, a man had his hand badly swollen; was it a felon? No; it was a bee sting. I looked to his sister, who kept bees, for an explanation. They were not hers, for hers were all dead; but other bees were there robbing the hives of their honey all day, and that was what I heard in my apiary nearly a half mile away. Although she is the proof reader of *GLEANINGS*, she had not gathered that any particular harm would ensue from allowing the hives to remain thus open. I wonder that all the people in the neighborhood were not stung. Thus you see that we judge from actions, sound of their wings, and general deportment, as to whether thieving or honest labor is going on.

DEPOSITORY ÔF

Blasted Hopes.

Or Letters from Those Who Have Made
Bee Culture a Failure.

OF 127 colonies. [the 163 reported in Feb. No., Will now discovers to have been a mistake; he counted the 36 in the house apiary twice.] I have lost and doubled up until I have only 87 left. I am not discouraged, or ready to give up, but am going to make the 87 "climb," through the influence of careful protection during the spring months, and judicious feeding. The above report is rather disgraceful to one who is teaching bee culture, but whenever the truth will kill me, let me die.

USING COMBS FROM COLONIES THAT HAVE DIED WITH
DYSENTERY.

I guess you will have to put me into Blasted Hopes. Out of 70 stands, I think I will have only about 25 left, I used, I suppose, by dysentery, bad honey, and long spell of cold weather. I wintered in Am. hives, on summer stands, well packed.

I am going to make chaff hives after this, brood frames to hold 6 Simplicity sections crosswise, 8 sections lengthwise [as mentioned in Feb. No.—Ed.], with open top bars. I have got enough of closed top bars. I would like to know if I could use these combs again, by extracting the honey. Will it affect the bees? If not, I shall have to get an extractor. I have 40 good set of combs, and can build up fast, if I can use them again. Don't you think so?

Would you take the honey out of the outside combs, when you give them to a young swarm?

STEPHEN HILL.

Port Huron, Mich., March 10, 1879.

To be sure, you can use these combs again, and do not, for anything, think of extracting the honey. It is in the very best shape possible for feeding and for new swarms; for all you have to do is to hang these combs in the hives, where food is wanted. If you wish to hasten breeding and comb building, just slice the caps off the combs. It has been tried a great many times, and the combs from colonies that have died seem to answer just as well as any, when warm weather comes, and even when used for wintering bees the winter after, they seem to answer just as well as any.

I commenced keeping bees in the spring of '68, and had about 40 colonies. In the fall and winter of '78, I lost 39 colonies. The next winter, I lost 29. You see I could not let them alone, and had purchased more; but the third winter killed the last colony. I however purchased again, and last fall went into the winter with 70 colonies, of which we have just 48 left; they are, however, all in good condition, and we mean to try it again. The yield of clover honey last year was the best I ever knew. Seven colonies of hybrids, in Conklin's Diamond hives, gave me 1,000 lbs. of honey, part being extracted and part comb honey.

C. E. BULISON.

Flushing, Mich., March 12, 1879.

MOVING HIVES CLOSE TOGETHER FOR WINTERING.

My trouble is this: I thought of wintering on summer stands, with chaff cushions, &c., as I had 6 strong colonies in L. hives. They were all young, but one, and unusually strong in stores, as I only took off one 5 lb. box of honey the past year, it having been a very poor one for honey. When our coldest weather came, in Jan., mercury down 10° to 25° below zero, I thought my bees needed some protection; so I moved them to the south side of a small building, and stored them side by side, packing them closely with chaff all around. They had previously been scattered all around through the yard, under trees.

The above you will see is contrary to your oft repeated instructions. Now for the result. They wintered finely so far as consumption of honey is concerned and are strong in numbers, but the first warm days in Feb. and in this month, they have spent their time in fighting more or less. I scattered them to-day and overhauled them. I find I have two queens left in the six colonies, 4 queens having been destroyed.

Now, what ought I to do? I dislike to unite them, because that would put 3 swarms to a hive; they are all very strong.

WM. H. GRAVES.

Duncan, Ill., March 8, 1879.

Give them some eggs and brood, and let them rear a queen. If no drones are to be found when the queens are 10 days old, kill them and let them rear others, until you get laying queens. If they get weak, give them eggs from time to time, and let them rear their own bees. Reports of such disasters as you mention, caused by moving bees around, are frequent, and it is mainly for this reason that I have devised the chaff hive, that the bees may remain undisturbed, and require no such "tinkering," either summer or winter.

ROBBING IN THE SPRING.

I had hoped to send you an order for some hives, section boxes, foundation, &c., at this time, but now I fear I shall have to go into Blasted Hopes, and will not need any supplies. I have kept a few bees for 10 or 12 years, and in the fall of '76, I had 20 colonies, all in box hives and well filled with honey; but during the winter of '76 and '77, some were smothered and others died with diarrhoea, so that when the warm days of March came, I had but 8 or 9 colonies left.

I then raised the hives from the bottom about ½ inch so as to give them plenty of air, and let them have a good fly. Well, the result was, robbers cleaned them all out. I started again, in the spring of '77, with one colony, increased to 2, and last year increased to 8 colonies, and had some surplus honey.

I thought, with the aid of GLEANINGS, my troubles were at an end; but, alas! 3 of these colonies were in Simplicity hives, 3 in American, and the other 2 in box hives. One of those in the American hives smothered, and the 2 in box hives were very weak, but the rest were in good order until the last 3 or 4 days, when robbers commenced again. I closed the entrance so but one bee could pass at a time, but it has done no good. They are fighting constantly, and it looks now as if they would clean out the last swarm.

I have a neighbor who had 60 colonies in the fall, and has lost over half of them.

E. WEST.

Channahon, Ill., March 10, 1879.

I fear, my friend, you have been careless about letting robbers get a start. One of the clerks asks if you did not leave the entrance of the hive where the bees died open? Have your stocks strong, everything snug and trim, and there certainly ought to be little trouble from the causes you have mentioned.

I will not want so many hives this spring as I thought I should, since I have only 2 colonies living out of 12; so you see, I have lost heavily for an A B C scholar. I had them in the L. hive, and the hives were not very well made. The bees had the dysentery. The colony containing my Italian queen died, so I am left with 2 blacks; but I am not discouraged. I want to increase, but to buy full colonies is too expensive, for I am only a coal digger. Times are very hard.

R. BLACKLOCK.

Geigerville, Ky., March 12, 1879.

I am a new beginner in handling bees, and have lost very heavily this winter. I had 60 swarms last fall, and they are all dead but 6.

JAMES McCLENOHAN.

Clyde, O., Mar. 17, 1879.

BEE BOTANY AND ENTOMOLOGY.

I SEND herewith, leaves, bloom, and pod or seed of a very singular and beautiful plant, or shrub. It is a stranger to me and to everyone who has seen it, and it seems to have got among us mysteriously. Miss Mollie Heath, the daughter of quite an extensive apiarian of this county, Mr. Henry Heath, procured the seed among other flower seeds, and planted them, late last spring, in the front yard at their residence.

This plant came up with the rest, but did not attract much attention until the last of August, when it commenced to bloom, and all other flowers were gone. Then every passer by stopped to admire it. There have been some 25 or 30 branches of bloom, with from 50 to 100 blooms each. It is about 3 feet high, with quite a large top. It is yet in full bloom, and looks, from the number of buds yet unopened, as if it will bloom until New Year's. Cold weather and frost don't seem to have any effect on it.

Not one of its many visitors has been able to name this stranger; so we have concluded to get you to do so for us, if you can, and tell us whether it is an annual or semi-annual plant, and where we can obtain seed of the same. I don't think any seed will ripen on this one, this season. The bees have worked on it all the time, and are working on it today.

G. W. SNIDER.

Denison, Texas, Nov. 23, 1878.

We sent the plant to Prof. Beal, who replied as follows:

This is some species of *Poinciana*, a woody plant closely related to the acacias. These belong to the order Leguminosæ, an immense order of 6,000 species. With more time and better specimens, I might make out the plant more certainly.

W. J. BEAL.

Agr. College, Lansing, Mich.



MISS MOLLIE HEATH'S HONEY PLANT.

As Leguminosæ is the family to which the locust, pea, and clover belong, it is nothing strange that this should be a honey plant. It is a plant of rare beauty, as you may see from the cut our engraver has made. The flowers are yellow. Friend S., we are much obliged, and if seed can be procured, we all want enough to give it a trial.

CHICKEN CORN.

I send you enclosed some kind of chicken corn (name unknown). I wish you to distribute it among some of your bee-educated friends. It is the most productive crop of any grain I ever cultivated. It should be planted and cultivated just the same as sorghum, which it very much resembles in size and growth. It remains in bloom 3 or 4 weeks, and bees work on no other plants while it lasts. I had buckwheat in full bloom along with it, and though I noticed closely, I never saw a bee on the buckwheat blooms while the corn was in bloom. I would like

to have some bee-man's experience of what benefit it is to the bees, that makes them so fond of it.

Birds and fowls are equally fond of it when ripe, and will soon devour the whole patch to the neglect of all other grain equally convenient, if it is not gathered soon after ripening. In your climate, it should be planted very early, as I notice that late planting here fails to form grain. FRED BATTLE.

Wither Depot, Tenn., Feb. 23, 1879.

Thanks, friend B. We sent samples of the seed to our seedsmen, and also to the O. Judd Co. Their replies are given below:

We are not acquainted with this particular variety, but, judging from the seed and your description of its growth and habits, we should pronounce it one of the numerous *Impheeas*, all of which, even if the seed should not ripen in our latitude, make good fodder when cut up and properly cured. Very early planting would not be advisable, but it should be planted at corn planting time, as the seed would not germinate at a low temperature.

Cleveland, O., Feb. 27, 1879. STAIR & KENDEL.

The seeds are evidently one of the Sorghums; but it is not possible, so many varieties are there, to say which one. In size and color, they are more like those of one of the sugar sorghums than those cultivated for their grain. I do not know how you can ascertain the name. I have, among the many kinds sent us, seen none just like this.

GEORGE THURBER,

Associated Editor of *American Agriculturist*.
245 Broadway, N. Y., March 1, 1879.

As our bee men are all "educated" or supposed to be, I will send a few seeds to try to any one who applies. If I get out, as I expect I shall, friend B., you will have to send me another little bag full.

Juvenile Department.

WE have got 5 swarms. One swarm is dying off quite fast. The bees come out when it is very cold, and fly a little, and then they fall and freeze. I put a stick before the entrance, but still they would try to get out; they would crawl out and I would poke them back; but they were bound to stay out, so I let them stay out and went away. The other 4 swarms don't die off so fast. What is the matter with the bees? Is there any remedy?

One night, the door was open and about half of them froze. Some die and stick fast to the glass. I hope you will read my letter and put it in the bee book, *GLEANINGS IN BEE CULTURE*, for I am a boy 11 years old. (I want pa to see it; he don't know that I am writing.) LONSON G. BARGER.

Five Corners, N. Y., Feb. 24, 1879.

To be sure, I will read your letter, friend Lonson, and I am very glad of the privilege of putting it in *GLEANINGS*. Your bees have the bee malady that has prevailed so universally, and I know no better advice than what I have given in the past few months. The warm weather has doubtless cured them, if they lived till it came. I hope your "pa" will smile, when he sees this letter.

I am a boy 10 years old. My grandpa gave me a nice hive of bees, and I want to learn all I can about them. OGIE DUDLEY.

Austenburg, O., Feb. 8, 1879.

Glad to hear from you, Ogie, and I hope you will please your grandpa by letting him see how much you have learned about that fine hive of bees.

Cleveland, O., en route for California, Feb. 20, 1879. I cannot call, but greet you as I pass. I saw D. Quinby, Thorn, and Cap. Hetherington, in N. Y. Our country looks cheerful notwithstanding it is covered with snow, and our people seem hopeful.

R. WILKIN.

The contents of this leaf and the one following are not directly connected with the subject of bee-culture. On this account, I make no charge for them, and, if you choose, you can cut them out without reading.

Our Homes.

Come unto me, all ye that labor and are heavy laden, and I will give you rest.—*Math. XI; 28.*

A FEW days ago, as I was returning from dinner, I saw a man coming toward me, evidently intoxicated. He saw that my eye was upon him, and seemed inclined to turn away to avoid meeting me; but as he could not well do this, he changed his plan, and started right toward me. Evidently feeling that I would be sure to speak, he put on a familiar air, and came straight up, put his hand on my shoulder, and began assuring me that he was in hearty sympathy with the work I had been doing. Said I:

"I am very glad to hear it, my friend. Will you please give me your name, and tell me where you live?"

"What do you want my name for?"

"Oh, I want to come and make you a visit some day, and have a good talk."

"But you must not talk on religion; I can not stand that; you see, I ain't one of that kind."

While we talked, I saw a bottle in his pocket that had just been filled, evidently, from the saloon near our place of business. I heard afterward that he was one of the most blasphemous skeptics that could be found in our town, and that no one could even talk with him on the subject. I felt very much the same reluctance toward going to see him, that I did in the visit I told you about in the Nov. No. I went to the hotel where he boarded three times, but could not well see him. The last time he had gone to bed. I know God likes pluck and courage; I dreaded the task so much that I wanted it over with. I secured permission to go into his bed room. The door was closed, and as I sat on the bed side, and saw that he was perfectly sober, I felt the field was clear: all the skill, energy, and wisdom God had given me, I felt was needed. Kindly but firmly, I came to the point. He had no recollection of meeting me on the street at all. When he first commenced drinking, years ago, he could remember things that happened, but of late, when he got on one of his crazy fits, as he called them, he knew nothing of what he had done.

"Why, you might commit murder in one of those fits."

"I know it."

"Do you know what delirium tremens is? Did you ever see a man who had them?"

He nodded; I have since learned that he knew quite well what they were.

"Now, my friend, we are getting at the point. What do you think about going on in this way. Has such a fate no terrors for you?"

"I used to think about it a great deal, but I am now such a hardened sinner, I have got used to it. I tell you, Mr. Root,"—here he raised himself on his elbow and began to

talk in earnest—"I tell you, Mr. Root, I cannot guide that horse. I used to try to stop, and I have promised not to drink any more, until I have concluded it is not any wickeder to drink than to tell so many lies about it. I do not like that kind of a way of dying, but what am I going to do about it? I tell you that is a horse I can't handle."

Do you know, my friends, why my sympathies are always drawn toward such a man? Do you know why that confession struck to my heart? Here was one who had been struggling in the bands of Satan until he had lost all hope, and given up. Can you understand how I rejoiced to be able to tell him of hope and help, even for one like him?

I had to tell him something of my old life, before I could draw out his sympathies, and get him to even take a view of a better life and a better world. I cannot tell just whom I am talking to, but to reach you, my friend, I feel that I must go back to the old life, where I left off last month.

When one of the commandments is willfully trampled down, it seems to open the way for a host of other Evil Impulses, and it is not strange that my temper, which had been carefully kept within bounds in my earlier years, began to increase and develop amazingly. The act of smashing the door down, given in the Dec. No., was only a natural sequence of what I have been telling you. The Home Papers, for the last 4 years, have touched frequently on the events of this portion of my life. To be sure, it was not always thus; there were weeks when I seemed to have conquered the Evil Impulses, and to have regained my old, natural self, but Satan had a purpose in this, as I shall explain presently.

About this time, I began to feel the strong conflicts between good and evil, and although it may seem a direct contradiction of terms, I seemed to be growing worse and better all at the same time. Good influences were around me, enough, it would seem, to have rescued almost anyone. When the Sabbath afternoons hung heavily on my hands, I used to go down to see my mother. The walk of 2½ miles had the effect of rousing my spirits, and for some reason which I cannot now explain, I used to like to hear her talk of religion. I combated her, and told her of the modern revelations of science, and tried to persuade her the Bible was not quite understood, and that a newer and better way was being unfolded. Sometimes she was half inclined to accept some of the ingenious new ideas, but the next time I saw her, she told me it was all wrong, and that the Bible was just right as it was; at least, it was a safe guide, while the other was not. Little did that dear old mother know how much depended on her simple, unswerving faith, and the danger that lay in her giving way in the least to the philosophy which the man of 35 was presenting to her. I was then wavering between the two paths, life everlasting, or eternal ruin.

God sent another agency to call me back, and to warn me, as Christian was warned in *Pilgrim's Progress*, of the rock that hung over his head. Do angels come to men nowa-

days, to win them back? A little blue eyed girl came to our house, and as soon as she was able to recognize the faces about her, there seemed something in that little face, that plead with me as from another world. Have you ever watched a baby asleep? Have you ever noticed the look of innocence—that wonderful innocence that seems as if it might reclaim a lost and ruined world—that look, so beautiful, which appeals so powerfully in its mute stillness? You all know how often I have spoken of her, but you little know how the image of her little self held me when nothing else would. I am crying now, as I think of it and of the wicked life I then led; it is not the first time I have cried over these Home Papers. I taught her to lisp her first words, and as I cheered her in her first attempts to bear her weight on those little feet, I used to say, "Away up high, papa's baby." As she crowed with delight, and threw her little arms about my neck, I felt, many and many a time, the awful need there was for somebody or something to lift her wicked papa "away up high." She, the little, unconscious child, was doing it. I did not believe in the Bible, but I believed in being led by a little child, for I knew she would lead me safely, if I followed her. One could not have been very bad under such influences, surely not. The temptation is very strong to skip what follows, but something tells me, if I would save souls, it will be better not to do so.

My friends have generally supposed I cared but little for dress in the other sex. I do not care for expensive dress, and never did. There were particular dresses I used to ask my partner to wear; I used to have much to say about the way she wore her hair, etc. What I said may not have had anything, in particular, to do with her wardrobe, and I do not know that I have any reason to think it had. However, there was one particular summer dress, made, to my eyes, exactly as it should be, that Satan seemed to have fixed himself to. I am talking of trifles, but the mission of these papers is to warn you, my friends, by telling you what trifles may do.

One morning, we three went out to see a buckwheat field. As the horse was restless, my wife held it, while my partner and I went into the field to see the Italians at work. She wore that dress I have spoken of. The bees were humming on the white blossoms, and it was a beautiful sight, but—I think, my friends, I would better tell the plain truth and admit that that summer dress in the buckwheat field had driven all thought of bees and everything else out of my head; so much so, that my wife, who was near by in the buggy, had called in vain, to let me know that the horse was getting unruly, and had finally been obliged to call on a man near by, to take charge of him.

I said, a few Nos. back, that I did not know that God had ever spoken to me in dreams. I do not know but that I shall recall that. Shortly after the event I have mentioned, in a dream, my partner, with my wife and children were on an excursion, as we frequently went, and we stood on the

shores of a lake or river. The children had been picking up shells and skipping stones. I had been busy by the side of my partner. I passed my wife, who was standing alone with the children. Our boy, who was about 10, had begun to notice the state of things. He was a manly little fellow, and as he stood erect near his mother, I noticed the pained look on his young face. His sister, about 8, only looked wonderingly from one to the other of us. Blue Eyes had just learned to walk, and stood holding by her mother's dress. My wife spoke slowly, in a quiet voice. I hear her words now, clearly and distinctly.

"Anos, the time has come, when you must decide whether you care more for your partner than for your wife and children. I wish you to feel that you are free to leave us if you prefer to. We will do the best we can."

I looked at my boy, at his sister, at my wife, and admired, more than I ever did before, her calm, womanly bearing amid trouble. I looked at little Blue Eyes tipping one way and the other on account of the uncertain footing which the gravel furnished for those little feet, and I thought of the four loved ones, for I did love them, taking their journey through life alone. Again I would have breathed the prayer, "O, God! have mercy on a poor frail mortal!" But there was no God. There certainly was no God for me then, for as I turned my face, I saw my partner walking carelessly, at a little distance; she wore the dress mentioned. She gave me a glance which I understood to be one of encouragement, and, as in the case of my right arm, I left all, and followed her. Do you remember the first two lines of the little hymn in the Jan. No.?

"Jesus, I my cross have taken,
All to leave and follow thee."

Can you, as you view the two inspiring motives, catch a glimpse of the awful distance that yawns between the man who is following Christ, and the one who is following his own selfish inclinations. The lines of that little hymn have gone all through my life, in the past two months, and that Jan. journal has gone through homes all over our land, through revival meetings, and neighborhoods (has even gone to India), has converted men, through God's grace, and has done good, without doubt, that I shall never dream of. How about the spirit of the other?

I awoke from the troubled dream, and was glad it was a dream, but yet, so far as I was concerned, it was not a dream after all. I remembered well the crazy intoxication of thinking the way was clear, and reason as I could, I could not help feeling that if I were subjected to the exact test I saw in my dream, I should do exactly as I did there. I know just how helpless that brother, mentioned in the beginning of this chapter, was, when he told me that was a horse he could not guide. I have since learned that my wife was, at that time, very near the point where I saw her in the dream. So far as my partner was concerned, I believe the dream entirely at fault; God's purpose was simply to show me how little able I was to stand temptation, should I have to pass such an ordeal, and I had been weighed and found

wanting by that dream, as effectually, as if it had been a reality.

Did I heed the warning? No.

A worse trial was coming. One day, while walking quietly along the street, I almost shivered with terror, while some fiend whispered that, if my wife should die, no harm would come to any one, and the world, which I feared so much, would have nothing to say. I would have torn the thought out of my bosom and flung it from me, but there it was. I tried not to think of anything so horrible, for I loved my wife in spite of all my wickedness, and my better nature insisted that I would rather go into my own unworthy grave, than have a hair of her head harmed. There the thoughts were, and more kept coming; whenever I saw that summer dress, they took courage, and pushed farther their hideous forms. Is it only intemperate men that see devils? Was I crazy? You knew me all that time, and were quite well acquainted with me; I will leave you to judge. The man who soaked his store with coal oil and then set fire to it, told me while in the jail, that when the temptation first entered his head, he rejected it with horror. Finally, without any intention of doing a thing of that kind, he allowed his thoughts to run in that channel, just speculating how it might be done. When he poured on the coal oil, he did not really intend to do it, but thought he would just go down cellar while he was thinking about it, and took the can of oil up stairs, without having decided to pour any on the goods. I know as well as you, my friend, that I am going down into horrible depths, and that I am raking up things of the past that might have died with me just as well as not, but I tell you a physician cannot safely prescribe for a wound, until he knows all about it. If this is insanity, and I rather think it is what often leads to it, I hope to be able to show you there is a remedy for insanity.

My friend in jail was tempted by the money that rightly belonged to the insurance companies, and planned a crime in obedience to Evil Impulses. He said he rebelled in horror at the thoughts, when they first presented themselves. Although I rebelled in horror at the thought of leaving my poor helpless innocent children motherless, my mind *would* run on, in thoughts about those around me whose wives had died; the length of time that public opinion demanded they should remain single; how they should deport themselves after such an event; how much sorrow and grief a man ought to show to hide from the outside world the fact that he was inwardly rejoicing. I thought then of the freedom (may God forgive me for even now making such an awful perversion of this sacred word), I thought of the freedom I should have in overcoming the prejudices and demands of public opinion. I have dragged before you these horrible details, because I wish you to know how much a man may sin without doing anything particularly wrong in the eyes of man; I wish to show you where crime germinates, and what kind of seeds it springs from. Actions very soon follow, after thoughts like these.

I remember coming home one evening and my wife was standing with the baby by the gate. I had been doing better of late, and as I saw her cheerful look of welcome, and heard the lisped "Papa" of the little one, up before me came the thought, that I had been wishing to see her dear form cold and silent in the coffin. I mentally groaned in agony. "Take me, O God, take me a thousand times, but spare that innocent woman, who is, at this minute, the very best and dearest friend I have on earth." So I was not so very bad after all. My friends will say so, and I had such a thought then. But trying me with a dream, it seems, was not enough, and so God gave me a trial that came nearer reality. My wife was taken very sick. It was said she might not get well. I tried to feel sorry, and tried to persuade myself that I did. I tried not to hope she would not get well, but instead only came a wild thrill of—it may be such a feeling as the fiends call joy, when they welcome a soul to the bottomless pit. I made up my mind to spare no expense. I would even go to Cleveland for the best medical aid, for I did not want to feel, ever after, that I had not done my duty; most of all, I did not want people to say I had been in any way remiss. I feared my own town's people more than I feared God. Please bear this in mind; we shall come to it again.

If anybody was owing me, and I pressed them for payment, they had only to hint at my weakness, and I forgave them the debt. About this time, I had criticized friend Moon in regard to the *Bee World* pretty severely; he made a threat in the next No., that I understood quite well, even if others did not, and I took pains to speak well of the *Bee World* after that. When Mitchell was put in the Humbugs and Swindles for black-mailing the people in regard to his false claim on division boards, he, too, poor fellow, judging by past events, thought to silence me by what appears on the last page of his circular. He did not know, perhaps, that the man who once feared public opinion and the truth, had learned to fear God only, and was willing to stand in any place where God asked him to, without fear or trembling, as far as he himself was concerned, at the prospect of having all his past life come out.

There came a new minister to our place. By accident, I was present and heard his first sermon. He was quite young, and seemed so boyish, that he enlisted my sympathies at the first. Of course, he thought he was right, and it was evident that he was trying to do the best he could. From my standpoint of superior wisdom, I was a little inclined to laugh at his gravity and earnestness, when he knew so little compared with us skeptics. You may think after what I have been telling you, that I was a pretty pattern of a man, to be setting himself up as authority on anything, especially, the morals of a community. This first sermon had something in it about gamblers and bad men who contribute largely to the building of churches, and for the furthering of charitable works. He said it amounted to nothing at all in extenuation of their sins, and would not count one iota, when the day of reckon-

ing came. He did not give it as his opinion, but put it in a way that appealed to one's good reason, and honest convictions. Thro' all these years, I had been giving money largely, perhaps even more than the church members, and one great motive in giving was because I hoped it would induce people not to talk. I gave money to my wife liberally, and gave to all charitable purposes. Sometimes it was quite convenient to allude to how hard I worked, and then gave freely of my money to an unthankful world. My wife's brother bought a farm in a new country, and was, as is often the case, somewhat cramped. I sent him money at different times, and told him I was glad to help him, which was true. Well, the books used frequently to get tangled and the best opportunity to fix them was evenings. Sometimes I was out late. One night, my wife ventured a gentle remonstrance. Without scruple, I replied that if her brother would send me the money he owed me, I should not be under the necessity of working late nights to meet my payments. This was as false as it was mean and contemptible; she knew he could not well pay it then, and so I used my money as a means of silencing her. This young minister's sermon held this and other acts of mine before me, in a way I could not evade, and I rather liked him for it.

Not very long afterward, I had an opportunity of telling him what a good man I was, and how much I helped the people and community in general, as I had been in the habit of telling other ministers. He listened, but he did not approve as I wished to have him. He was very stubborn in what I then called his narrow views. I finally declared that I was discharging every duty in life, that I knew of. He looked troubled, and said but little. In his next sermon, he stated that he had been told by men in our town, that they were not conscious of having left any duty in life undischarged. He summed the matter up, and ended by declaring that those men *knew* they were liars in the sight of God. I was very angry, and declared I would never again go into the church where such a man was employed to preach. I met him afterward, and told him what I thought of such a rash speech. I tried to make him take it back, and to admit that he did not know whether a man was discharging all his duties or not. He would not do it. I demanded it. He was silent, and seemed in deep thought. I know pretty well now, that he was praying for guidance and wisdom. He spoke very quietly.

"Mr. Root, you have a son?"

"Yes."

"Now do not answer me, but answer to your own conscience; please do not say a word, but simply think over the matter as you have leisure. Look into the depths of your heart, down where God sees but I do not, and then answer this question: Do you wish that boy to grow up just such a man as you are?"

He left me. My boy—my only boy—God forbid that he should ever grow up to be the whitened sepulchre that I then was. I could not get angry, for there was no occasion, and no one to argue with. My partner once

asked me, how I would advise a sister of mine, placed just as she was. I answered evasively, but a vision rose up before me of one of my four sisters being talked to by a married man as I had just then been talking, and the idea was so horrible as to be positively sickening. I was doing exactly what I would have been almost tempted to shoot any other man for doing, and then told this young minister I had left no duty undone. I have an older brother who looks very much like myself, so much so that we are often mistaken for each other. I once caught a glimpse of my own face in one of the mirrors of the show case. I was startled by the true reflection of the glass, and closed the door hastily, for in that face, although I got but a glimpse of it, I saw a horrible, demoniac leer, that I would not see on my brother's face, for scarcely any earthly consideration. Satan gave me a look, out of my own eyes, that haunted me afterward. If you are willing that your sister or brother, your boy or girl, should do just as you do, my friend, I think you are on a pretty safe track.

About this time, I was building a greenhouse, partly under ground, to test wintering bees under glass. I spent a great deal of time there alone, and had opportunity for meditation. This was during the month of Jan., 1875. Several times during that winter, a new temptation had presented itself, in quite another direction. It was quite risky, and I had put it away again and again. I should have to brave the people, and worst of all, it would bring down my mother's gray hairs with sorrow. I could tell everybody else, to mind their own business, especially, if they blamed or censured, but she who was so sure I was good, true, and honest, would have no word of reproach, only of grief and sorrow, when she found I had deceived her. I battled against it in my feeble strength, but it was coming nearer and nearer. The editor of our county paper wrote some articles on modern skepticism. I took up with them at once. After reading one of them, I took him by the hand one day, and told him I was proud to feel that we had a man in our own county, who had the courage and energy to brave public opinion enough to say that the Bible was a relic of past heathenism, and should be pitched out of the windows of every well regulated church and Sunday school. It may be well to state that I had not been inside of a Sabbath school for nearly 20 years, but for all that, I considered myself just the one to decide on such matters. Quite a talk followed, and the result of it was to me harm, great harm, although, finally, good resulted from it, in a way I will explain presently. I have no idea that my friend, the editor, thought of the harm he might be doing, for I did, and do now, consider him a friend of good morals. I feel that we all should consider well, what the effect of taking such positions may be on those about us. Shortly afterward while alone in the greenhouse, the new temptation presented itself again. I distinctly remember thinking of the talk about the absurdities of the Bible, and of struggling to think of better things.

But when Satan would not let me go, I turned round and promised to follow his suggestions. I had never used an oath before, unless I was angry, but now I spoke aloud, and, with an oath, declared I would do it. The steps to be taken were all easy. fortune seemed to favor every move. Even conscience was stilled. Sunday came. I was not going to meeting anymore, so I strayed down in the green house watching the bees as they flitted back and forth to their hives, gathering meal. Towards noon, a sudden fit took me to go to meeting again, after all. My first step was to go up and scold my wife for not calling me, although I had told her I was not going any more. She suggested it was too late, but I declared I was going any way. The house was crowded; I looked in vain for a seat, near the door. As I passed up the aisle, the minister stopped preaching, while many eyes were turned on me as I sought and finally found a seat. I was very angry again, at what I called a pointed insult. I or all that, I caught one idea from a little anecdote he told.

A miner was sinking a shaft, and had got a little way below the surface of the ground. His little girl came out about nightfall, to call him to supper.

"Father, are you down there? I cannot see you."

"Yes, I am down here, and I can see you, very plainly."

"May I come down?"

"Yes; jump, and I will catch you."

"But I can not see you at all. Do you mean I shall jump right into that dark hole with out seeing?"

"Yes, jump right into the middle of the dark hole. You can trust your father, even though you do not see him. Shut your eyes, and jump."

Of course she was safe in her father's arms at once, for he would never ask his child to do anything unsafe. The minister said we were to have just that faith in God.

Friday night came; Feb. 5th. 1875. I can only remember that the hands were all gone home, that the curtains were all down, and I was alone. I was angry, very angry, with my partner about something, I do not now remember what. I had been angry for several days, and I could not put the idea of revenge out of my mind. I was in a condition where I would not scruple at anything, scarcely, and when I tried to put this feeling away and feel kindly toward her, I could not. There was an end coming some where. Would that end be the penitentiary or something worse? Crime was in my heart. You may think I exaggerate. I have all my life been in the habit of going to extremes, and of doing with vehemence and energy whatever I set about. Such people are sure to do evil, if they are not busy doing good. I commenced walking about the room, and, very likely, I walked around that stairway.

I remember wondering why it was that these evil passions were swaying me, in a way they did not in former years, and why it was I could no longer curb my temper as I used to do. I tried to put away these evil thoughts and think of something better, but it was utterly beyond my power to do so. I

reasoned that I was made so, and I could not help it. If there was a God, he was to blame for having made such an unwieldy piece of humanity, and that inasmuch as I had tried as hard as I could to be better, and had not succeeded, the blame certainly was not mine.

My thoughts went back to my childhood days, and I contemplated the wide abyss that stretched between myself, an innocent child, and the man I then was. What would I give, O, what *would* I give, to be the same light hearted child again! It can never be. The years that have passed while I have been slowly hardening can never be recalled. Certainly none but God could give back one's childhood. Did He care for the creatures He had made? Some being created this earth; some being *must* have done so. Was it a being that cared what became of the creation of his hand? O! that such were the case, that I might call on Him now, and that he might listen!

I thought of the little girl who jumped into the dark hole in the ground, in response to her father's well known voice. She knew his voice, and was not afraid. O! that I could be assured that there *was* a God, and that I could have some evidence that he really did care, whether I made a ruin of my life or not! I paused. Finally, I knelt on the floor, and with bowed head, spoke aloud my thoughts something as follows.

"Will that Great Being, who created this vast universe, and who saw fit to give me a place in it—will that Being, if such there be, give me evidence here to night, that he does care for such unwieldy, wicked creatures as I am, and that I am not entirely alone and helpless, amid this world of temptation, trial, and evil impulses."

A strange peace stole over me, and a presence seemed near, which I had never felt before. That presence seemed to speak, although it was probably conscience speaking strongly, and the idea that came out, clear and strong, was, "My child, what would you have? What boon do you crave?"

I spoke aloud again, "I would have back that childish innocence; that freedom from malice toward anybody or anything; that happy, trustful, contented mind, that I had when standing at my mother's knee, back in the dim years of the past."

"And what will you give for this? What price do you propose to pay?" said this new presence.

"All and every thing," said I.

"Think," said the new presence. And I then began to consider my promise. My life passed before me in review, as it does sometimes before one in falling. I very soon came to the time when I raised my hand in the woods, and called on God to witness that I would be a better man. I thought of my weakness and, sick at heart, said aloud,

"I cannot, I cannot; O God, I cannot."

At this point, an idea struck me, that was as unexpected, as it was inspiring.

In all the sermons I had ever heard, I never even got a glimpse of the idea that one had not to fight these battles *all alone*. Ministers may have tried to get the idea before

their hearers, but it had entirely passed over or by me. When the voice of conscience, or whatever you may call it, spoke out, strong and clear, "Obey and you shall be made strong; trust me and you shall have help you dream not of," I was surprised and astounded.

I promised to obey, and all my old thoughts and feelings began to fade away. I began to feel the peace and quietness, the kindness and love to every body and every thing, that I had asked for.

The past years of life began stretching out as in a panorama; and, as I stood at one side and contemplated my actions as an outsider might, the feeling was one that can not be described. There was at the time, in our town, a series of union meetings going on, and all I knew of them was that a girl that lived with us had been attending them night after night, and that I talked to my wife about her folly in wasting much of her time in that way, when she was so poorly-able to afford it. A prayer meeting was, above all things, an abomination to me, and when I thought of people getting up, and asking others to pray for them, the idea was almost exasperating. I used to feel like saying about those who rose for prayers, "You miserable, whining, weak specimen of humanity, if you cannot pray for yourself, the quicker you go 'to the dogs' the better", and I used to tell the boys who worked for me, that I hoped they had good sense and strength of mind enough, to keep away from such meetings. Well, all at once, it struck me that, perhaps, it would be my duty to go to prayer meeting. I had got over every thing else and had begun to see the beauties and joys of a new life; after having been lifted over my greatest failing, I was stumbling at the idea of going to prayer meeting and telling them of my new stand in life. At length, I spoke aloud again.

"No sir, I won't; if I can't be a Christian without going to prayer meeting and getting up and talking, I beg to be excused."

Back again trooped the old life: anger and guilt took their places, and contention, strife, jealousy, and revenge, resumed their sway. I wonder if any body else ever felt what it is to be cast from heaven down to the regions of darkness, as I was then. It was too much to bear; down on my knees, I went again, and plead for that better spirit to come back, and promised I would do all or any thing, and never more rebel.

I presume I have been a better Christian for having had this little tussle, at the outset, with Satan. How light my heart was that night, as I started for home! on the way, I happened to think that now I should like to read the Bible; and, as soon as I got there, I got it and turned to the beginning of the New Testament. What a wondrous beauty there was now in the words in which I could see no meaning before! How every page seemed to strike heavy blows at the life I had been leading, and to exhort and entreat to better ways and things. I did not say anything to my wife then, for I felt a little weak and alone as yet. I was in a new land, and almost afraid to take a single step, for fear it might not be the right one. True,

I felt the new presence near me, but it seemed then to be guiding in no particular direction. The battle had been fought, and I had promised to obey whatever orders might come, but, as yet, none appeared. I went to bed at 12 o'clock, and my wife was crying again, but I knew that this time, her tears were tears of joy.

WORK AND WAGES FOR 1879.

I do not give the following because I am in want of hands; on the contrary, I am besieged daily by those waiting places, and have a long list ahead waiting for the first vacancy that offers. But I give it because I wish it known that a manufacturing establishment can be conducted on such a basis.

BUSINESS AND MORALS.

I feel that God has given me this business, that I may do good, in my own native town of Medina, and perhaps in the country round about. I can do good, by giving employment to those who need it. The money I pay you, comes from all parts of the world, even from across the wide ocean. Now if this money goes to the support of saloons, billiard halls, distilleries, tobacco shops and places of like nature, or to those who will use it for smoking, drinking, gambling, Sabbath breaking, etc., will it do good? The very work done by boys who use their money in the manner I have mentioned, may often be done by women who have small children to support, or by those struggling to get an education, and who would use every copper of it, for the necessities of life. Whom shall I employ? those who make a good use of their money, or those who do not? Have I any right to decide what use you shall make of your money? In one sense I think I have not. Have I a right to employ whom I choose? As a general thing, I think I have. Have I a right to make conditions with those whom I employ. I think I have; nay more, I feel, my friends and fellow townsmen, that God calls on me, yes, even demands of me, that I use every means in my power, to raise up, and elevate the moral and spiritual condition of those about me. If I do this, and work for him, leaving myself out of the question, he will take care of this business, and not only will it continue to build up during my life, but the same spirit will perpetuate it long after I have ceased to be with you to direct it.

These are the conditions which I feel that God calls on us to subscribe to, and under which we shall all of us have plenty to do, so long as we are faithful.

In consideration of receiving employment in this establishment, I agree—

First: To respect and reverence God and his laws.

Secondly: To forbear taking His name in vain.

Thirdly: To remember the Sabbath day to keep it holy, and that I may do this, I agree to attend some place of public worship twice at least every Sabbath. (A Bible class, Sabbath school, or prayer meeting is considered a place of public worship.)

Fourthly: To abstain from the use of every drink that will intoxicate, from the use of tobacco in every shape, from card playing and billiards, or attendance at public dances; not only that I may shun every appearance of evil, but that I may not encourage others who may be more harmed than myself, by the force of my example.

Fifthly: To be courteous, pleasant, and civil to my shop mates, even though they be uncourteous and uncivil to me.

Sixthly: Whenever I find myself unable to comply with the above requirements, I agree to yield my place pleasantly, to some one else.

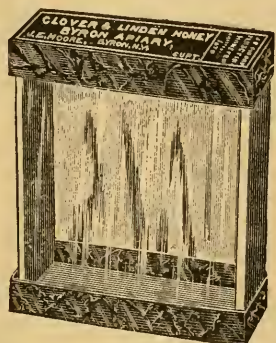
Signed

Applicants need bring no references or recommendation. It matters not what your past history may have been, what your age, sex, or condition. The only question is, are you willing to commence a work of reform?

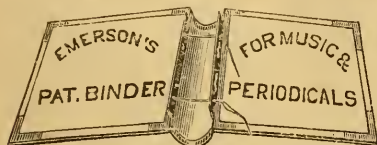
A. I. ROOT, Medina, O., March 22nd, 1879.

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Also price list of Queens, Comb Foundation, both old and new style, Section Boxes, and Glass. 4d



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BEFORE

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COMB FOUNDATION,

and Implements in Bee Culture, write for circular with prices and sample of Comb Foundation free.

50 good colonies of common bees in box hives at \$3 50 each. CHAS. DADANT & SON, Hamilton, Ill.

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I warrant, as properly mated, all "Dollar Queens" sent out by me this season. My Queens are all bred from best imported stock, and I promise safe arrival and perfect satisfaction. Prices in May, \$1 50; in June \$1 25; after June \$1 00. E. M. HAYHURST, Kansas City, Mo.

Names of responsible parties will be inserted in either of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per year.

\$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen mother. If the queen arrives dead, notify us and we will send you another.

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- *A. I. Root, Medina, Ohio.
- *H. H. Brown, Light Street, Columbia Co., Pa. 7-9
- *E. M. Hayhurst, Kansas City, Mo. 1-12
- *J. M. C. Taylor, Lewiston, Fred. Co., Md. 1-6
- *Paul L. Viallon, Bayou Goula, La. 8-12
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- *J. Oatman & Sons, Dundee, Kane Co., Ill. 2-1d
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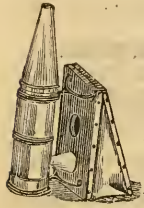
- We will send GLEANINGS—
- With The American Bee Journal (\$2 00)..... \$2 25
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10c each or \$1.00 per doz. If sent by mail, double above prices. These vines are the best to be had, and are just such as we have planted in our new grounds for shading the hives.

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"Quinby's New Beekeeping."

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Patented and much improved. The best in market. Three sizes, by mail, \$1.00, \$1.50, and \$1.75.

Send for circular of new supplies to
L. C. ROOT,
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ITALIAN QUEENS, FULL COLONIES, AND NUCLEI AT REASONABLE PRICES.

I am prepared to furnish early Queens, bred from imported and select homebred mothers, warranted to be as pure as any in the U. S. Also Albino Queens. Safe arrival guaranteed. Also Hives and Apiarian supplies. Send for price list, &c.

Address S. VALENTINE,
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Alsike Clover Seed.

A fine new lot of Alsike clover seed, very clean and raised near us. Price per lb., 22c; per bushel, (60 lbs.) \$12.00; ½ bushel, \$6.00; peck, \$3.00. If wanted by mail add 18c per lb. for bag and postage.

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All bred from imported mothers of my own importation. Dollar queens, \$1.00; ready in April. Tested queens before June 1st, \$3.00; after, \$2.50. Full colonies of Italians from \$7.00 to \$10.00. Four frame nucleus with tested queen, before June 1st, \$5.00, after \$4.50. Comb Foundation, Bee-Keepers' Supplies, &c.

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For Italian Bees, Full Colonies, Nuclei or Queens, and Pure Bred Poultry, including Land and Water varieties, Address
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Superior Double Refined Grape Sugar for feeding bees, at 3½c per lb. in barrels of 375 lbs., and 4c in boxes of 50 or 110 lbs. Crystal Glucose Syrup 5c per lb. by the barrel. Samples of the Grape Sugar will be sent by mail on application.

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In all my experience in the Watch and Jewelry Business, I have never before seen a good Silver Watch for the low price of \$9.50. I have just succeeded in getting, of the American Watch Co., a good strong

SILVER WATCH, ALL REGULATED, AND IN Running Order,

That I will mail to any address for the above price; and if it does not please you, you may return it within 10 days, and get your money. Or I will send you the Watch, for 20 subscribers, at \$1.00 each. You can have either hunting or open face, and such a Watch, for a present, ought to make any boy (or man either) happy.
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PURE ITALIAN QUEENS

and Colonies for sale for 1879. The best is the cheapest at any price. Circulars sent free.

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1879.



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Breeders of Pure Italian Bees and Queens, from Imported and Home-Bred Mothers, and Manufacturers of Hives, Prize Boxes, Comb Foundation, and all general Apiarian Supplies.

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Reserved and Early Tested Queens.....	\$3 00
July and September " " " " " " " " " " " "	2 50
Colonies of 10 frames.....	9 00
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Comb Foundation, 10 lbs. and over, per lb.....	50

Wax cleansed and worked for 25c. per lb., or on one-half shares.

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PRICE OF ITALIAN QUEENS

D. Tremontani, Cremona, Italy.

April, May and June.....	12 francs in gold.
July and August.....	10 " " "
Sept. and Oct.....	7 " " "

Price for California and Australia, 2 francs more than above.

No order for less than 8 queens is accepted. If any queens die in the trip, they must be sent back in a letter to have the right to an invoice of compensation. If anyone should refuse to accept the invoice, all right to a compensation shall be lost. [The value of a franc is 18½ cents, gold.—Ed.]

D. TREMONTANI, Cremona, Italy.

GLEANINGS IN **BEE CULTURE.**

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VII.

MAY 1, 1879.

No. 5.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.
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TERMS: \$1.00 Per Annum in Advance; 3 Copies for \$2.50; 5 for \$3.75;
 10 or more, 60c. each. *Single Number, 10c.*

SCRAPS AND SKETCHES. NO. 5.

A HOME-MADE LAMP NURSERY.

I DID think of ordering the \$1.00 soldering implements, and trying to make a nursery myself; but as I had no machinery for cutting or folding the tin, and no experience in the business, I concluded to give the job to our village tinner.

I took a frame from a hive, carried it to the tinner, and had him make a tin box $\frac{1}{2}$ in. deeper than the frame, and large enough, each way, to hold the frame. After this box was finished another was made just like it, only it was 2 in. broader, each way, and 1 in. deeper. Inside the larger box, at the lower corners, were soldered pieces of tin, which kept the smaller box—when it was placed inside—just an inch from the bottom and sides of the larger one. Outside the smaller box, near the centre of each side, was soldered a sort of prong, made of tin, which projected downward; and when this box was placed inside the other these prongs slipped into tin loops, or staples, which were soldered inside the larger box, and thus the sides were prevented from bulging. The bottoms were not fastened together, and bulged some; but as the nursery was $\frac{1}{2}$ in. deeper than the frames, it did no harm. Four strips of tin, each $1\frac{1}{2}$ in. wide and as long as the width of the nursery, had $\frac{1}{4}$ in. of their edges turned up so that they resemble long, shallow troughs, 1 in. wide, and $\frac{1}{4}$ in. deep. These troughs were turned bottom side up, slipped on over the upper edges of the 2 boxes, and soldered fast, thus forming a sort of tin "binding", which fastened together the outer and inner walls of the nursery, and held them firmly in place. Near one corner of the nursery, a $\frac{3}{4}$ in. hole was cut through the tin "binding", into which to introduce a tunnel when the nursery requires filling. Inside the nursery, near the top, were soldered strips of folded tin upon which to hang the frames. The nursery was made of the best roofing tin.

If you will tell your tinner just what you wish for, explain the "why's" and "wherefore's", and let him read this description, he ought to be able to make you a nursery; and if he can work as cheaply as our tinner, he will charge you only \$2.00.

A tall box was next made to put the nursery in, and blocks were nailed inside, at the corners, for it to rest upon. When the nursery was put in place, there was $\frac{1}{2}$ in. space, all around between it and the box, and the top of the nursery was level with the top of the box. To keep the nursery in place, and to prevent the heat from escaping, strips of wood $\frac{1}{4}$ in. square, were put in between the upper edges of the box and nursery. For a cover, I used a wide board which was cleated to keep it from warping, and strips of woolen cloth were tacked around the upper edge of the box, to make the cover fit close and snug. I used an ordinary hand lamp, fitted with a burner that allowed the lamp to be filled while burning. The bottom of the nursery was a foot from the top of the lamp chimney. A door was made in one side of the box, near the bottom, through which to put the lamp. Upon trial I found the box was so close that the lamp would not burn, and I had to bore some holes in the sides to let in the air. The nursery was kept in doors, and in very warm weather the lamp could be turned down so

low that very little oil would be consumed.

W. Z. HUTCHINSON.
 Rogersville, Genesee Co., Mich.

SPRING DWINDLING.

A REPORT FROM THE BATTLE FIELD, BY AN
 "EYE WITNESS."

TO-DAY is the 15th of April, and scarcely a bit of pollen has been gathered. The buds of the soft maple are open, but for some reason which I cannot give not a bee is to be seen hovering near them; the slippery elm is also in bloom, but, strange to say, not a bee hums about it either. The weather has not been very warm, and there is a cool north wind which may account in part for the seeming indifference of the bees to blossoms. Last month, I reported 85 colonies left. Since then, one after another, they have been dwindling down, in a wonderfully short space of time, and stocks that were called fair, having brood on several combs a week ago, are now found with only a handful of bees, the brood dead by exposure, the unsealed larvae starving and drying up in the cells, and a general air of discouragement all about the hives. Some colonies bring in a little pollen now and then, but the greater part of them seem to have suspended work, and the bees are loafing idly about on the combs. Usually, we find a row of cells of unsealed honey around the young brood, but now the heavy combs of sealed honey remain untouched, and not a cell of honey is placed close to the brood for immediate use, and every bee seems to have stopped work. When we open hives, there is no need of a smoker, for the greater part of the bees seem too listless to care to show fight. Some cases seem to indicate that the black bees are less affected than the Italians; but, again, we find heavy stocks of blacks, in box hives, bought of one of our neighbors, all at once reduced to a handful, the queen gone, and the whole establishment an easy prey to robbers, if the robbers had energy enough to appropriate it. The dwindling is not in my apiary alone, but is also lessening the stocks of the farmers and other bee-keepers in our vicinity, and, in fact, all over our land, as you may gather from the reports in this No. Not that every body has lost thus, for many whole apiaries

seem to have wintered as well as they ever did, but the losses seem to extend so widely, that it is almost impossible to ascribe it to any special locality, or kind of stores. The chaff hives, it is true, were all right when the others were dying off at a rapid rate, but within the past week they, too, have begun to follow the rest, at a rate that is alarming. The house apiary, somewhat to my astonishment, seems almost unaffected, only that they are making very slow progress in brood rearing, and a very few stocks show signs of the universal dwindling. Even the flour candy seems to have lost its potency to start brood rearing. I have had experience in this same line before, and it seems to me that nothing but new honey and new pollen can revive the drooping courage of our little pets. I need hardly add that grape sugar has nothing to do with it, for apiaries where it has never been used are just as much affected. The bees have died close up to combs of sealed clover honey. No symptoms of dysentery are to be seen. Meal has been given them in fine weather, but their zeal for it has been nothing like what it is usually. There are now 55 "hives with bees in them," in our apiary. Perhaps a dozen of these have queen cells, instead of queens. Four whole colonies, 9 nuclei, and 35 queens (48 in all) have been sold. I am thus particular in giving these details, because I think all who embark in bee-culture should have a fair view of the obstacles they may have to contend with.

It is not often that I disobey orders, but the following describes so vividly the condition of my bees, except those in the house apiary, that I have concluded to run the risk, and give it. It may make some poor fellow feel better, friend Bray, for you know that misery loves company.

Well, I went into winter with about 130 colonies of bees. Today I think I can house all I have left in a ½ bushel measure—yes, I believe I could put them in a peck basket. Don't publish this. It would cost me about \$500, to replace them. What's the matter? However, I shall not give it up. Can you offer me any consolation? I hope you have had better luck than I have.

J. B. BRAY.

Lynnville, Ten., Mar. 23, 1876.

April, 25th.—We have now had nearly a week of beautiful weather, and the troubles are all over. The bees are at work on the maples, and under the influence of new honey and pollen, everything is promising. The weak colonies have still quite a propensity to swarm out, and for some strange reason, our queens most unexpectedly turn up missing every day or two. This trouble seems mostly confined to the black queens in hives I have purchased, so we cannot well ascribe it to any artificial ways of managing. The farmers in the country round about us have lost most heavily. Our neighbor Shaw, of Chatham, strange to tell, has come through again this winter, without the loss of a single colony. His hives are not chaff packed, but are double, with a dead air space between the walls. Those of our neighbors who reared queens for sale last season have generally lost badly. Our engraver, who had quite a fine little apiary in the fall, has now but two colonies left. His imported queen went with the rest, and it

was perhaps his sad experience that prompted our cartoon for this month, which I may as well give you right here.



AN EXPERIENCE THAT "BLESSED BEES" DIDN'T TELL OF.

For some little time past I have talked to the boys and girls at our noon-day prayer meeting, of the blessings that many times come in the guise of troubles. If we succeeded in every thing without trying hard, we would never develop much strength of character, or power of mind or body. Still farther, if we take troubles aright, they almost always do us good, in the end. Well, what good is to come from having our bees all die, as they have done during the past month or two? That is a question I have been asking, and I begin to think I see a little daylight ahead. I have nearly a ton of nice sealed honey in frames, just right to build up new colonies. I can buy nice young queens, very soon now, from our Southern friends, at a low price, and with the thousand or more nice combs stored away in the honey house, I could build up an apiary very quickly, if I only had the bees. Where shall we get bees? If I buy, they must come by express, and are almost invariably in some great heavy awkward hive that I have to hire a man to make into kindling wood, after paying several dollars express charges on it. The combs, too, are crooked and not to be compared with those we now make the bees build from the film, but I have to pay the express charges on these too, just to get the bees. The apiary, at present, furnishes only three commodities: honey, wax, and queens. Why not make a fourth by selling bees? A quart of bees would be worth to me during the month of May, a dollar, without any question, and you who have plenty of bees, without doubt, could make a nice thing of it, by furnishing me and others who have plenty of empty combs and stores, at the price mentioned. The express charges on the bees alone, will be but a trifle, compared with that of a great hive, and now I will tell you how I have been "walking round the stairway," with a view to helping you all.

Get a wire cloth screen such as is used to cover dishes to keep the flies away. They can be had of any tinsmith, for a few cents each, and can be had of different sizes. Cut out a piece of board so as to just fit inside, and then make a large hole in the center of the board, so as to leave, in fact, only a ring of wood. Tack a piece of tin on the bottom of the board to cover this hole, and then fasten a low, flat bottle in the center of the hole. A couple of wires twisted around its neck, with the ends tacked into the wood, will hold it. Now the space between the wood and bottle is to be filled with candy. The candy must not be put in until it is nearly cold, or it may break the bottle. Fill the bottle with water, put in a large wick, and the bees will have pure sugar, pure water, and plenty of pure air while on their journey, and the shape of the package is such that the expressmen will not be likely to tip it over, or to throw anything on to it. The engraving below will show the arrangement.



CAGE FOR SENDING BEES BY EXPRESS.

If you can devise a cheaper and lighter package for sending bees alone, by express, I shall be very glad to have you do so. Perhaps a light pine box with a comb or two of honey in old, tough combs, may answer as well as the arrangement I have described, but if you do not want the bees to die, you would better have wire cloth on at least two opposite sides, and some arrangement for giving them plenty of pure water. Pure water and pure sugar enables bees to stand confinement much better than honey, so far as my experience goes, and if you want simply to confine bees, without having them rear brood, I would not put any flour in the candy.

The price I have mentioned is for live bees delivered at our express office, and if they smother or starve, it will be your loss. A good swarm of bees will often fill a peck measure, and at the price I have given, would be worth \$8.00 without any queen. If you choose to send a queen with them, I will allow you the usual price for her. How many bees make a quart? Well, I have just been to the apiary and counted out 100 bees, and found that they weigh $\frac{1}{2}$ oz., and measure 1-16 of a pint. This would give the weight of a quart of bees at just about 1 lb. These bees were picked from the combs with their heads in the cells. I think a dollar a lb will be a very fair price in the spring, or before the honey season. Weigh your box with the requisite provisions etc., before the bees are put in, and then again afterward, and you will have their exact weight. Now who will help get this new product of the apiary into working shape? I suppose you know that if you have one stock of bees left, from which to get brood, you could soon replenish all your hives, even if you had no queens at all, for a pint of healthy young bees will

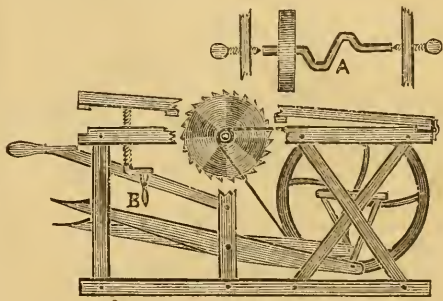
raise a queen without trouble, if given a bit of brood during the month of May.

THE MARKET PRICE OF A BEE.

There are 3200 bees in a lb., so you see the market price of bees to-day is about two dozen and a half for a cent. Who wants to sell? And who will buy? Next month I will open a department, and will publish the names of all who will sell or buy at these figures. Names inserted first time free. Now am I not right in saying a good lesson may be gained from all our troubles, if we only look at them aright?

HOME MADE BUZZ SAWS.

I NOTE, in April No., that you give a plan of a foot power buzz saw, almost like the one that I have been using for two years; but I use two treadles instead of one. I also have a seat to rest my weight on, when the sawing does not require my entire weight on the treadles. The shaft, A, with the fly wheel, turns on steel points, as also the saw mandrel. It runs much easier and very true. I also have two screws, B, to set the table high or low. The fly wheel is 4 ft. in diameter, and the pulley, 3 in. The fly wheel sets back so as to give more strap on the pulley. I use a mandrel for each saw. They are easily taken off and easily put on, by turning the one steel point. I never take the saws off from the mandrel when filing or setting, because they are very troublesome to get true.



CARPENTER'S DOUBLE TREADLE FOOT POWER BUZZ SAW.

I made the frame. It cost \$3.00. The mandrel and all the irons and two 6 in. saws cost me \$5.00, making the whole cost \$8.00. I like it much better than any single treadle I have ever used.

Polo, Ill.

H. F. CARPENTER.

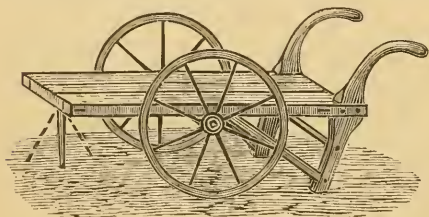
Our neighbor, Dean, of River Styx, has a saw on a similar principle, with double treadle, which he has used for years past with excellent satisfaction. The power obtained by using both feet is quite an item, but without some practice the swaying of the body while at work is a little annoying. Friend Dean saws out hives and all kinds of frame stuff, with wonderful rapidity; but in sawing thick stuff for sections, I believe he usually attaches a horse power to the saw. One who is expert with the double treadle will make the sawdust fly, and his appearance, when making both arms and feet go like a small threshing machine, gives me a vivid idea of a man who is trying to fly.

So many losses are reported in sending money by mail this spring, that I do not see but that I shall have to advise sending all sums of more than \$1.00, by postal order or registered letters. Sums less than \$1.00 may be sent in postage stamps. One's and two's preferred, as we have a great quantity of three's on hand.

BEE CARTS FOR THE APIARY, MARKETING HONEY, ETC.

I HAVE received inquiries in relation to bee carts or carts for the apiary, and thinking the plan might be of interest to you, I send a diagram of the one I use.

The wheels are 20 in. in height, with an axle 4x2 in. The length of the platform is 4 ft., the width 2 ft. The platform is just the right height to form a seat as you wheel it from one hive to another for examination. It is handy to wheel hives from one position of the apiary to another, or a box can be attached, as shown by the dotted lines, and any thing can be carried. In the extracting season a whole load of frames to be extracted can be gathered and wheeled to the house, or a load of sections can be collected in the same manner.



J. H. MARTIN'S BEE CART.

I mounted a covering of mosquito netting over it, one season, placed the extractor upon it, and extracted honey from each hive. It all went very well while honey came in profusely, but as soon as there was the slightest let up, the bees came for the cart in swarms, and would get in in spite of us. The place for putting the frames through had to be kept so close that in passing and repassing full and empty combs, more or less honey would get stuck around the edges, and the robbers would hold a glorious old jubilee around it. I now prefer to extract in the house; it can be done just as fast, with perhaps a few more steps. Can you tell us how Mr. Blakeslee's car and R. R. track worked? By the way, what has become of Blakeslee and also of friend Bolin? It seems a long time since we heard from them.

I want to know how bees wintered, packed as noted on page 375, Nov. No. of GLEANINGS, 1878. I think we ought to have more room under the frame in chaff hives; furthermore, our entrances are quite low; if the bees could be packed in the upper story, with an entrance at a greater distance from the ground, it would be better, I think. I have been in hopes somebody would invent a chaff hive that could be used both single and double story; there is no plan equal to the Simplicity for manipulation.

Now, I think I will close this epistle with a "growl". Your honey knives get loose in the handle. My own soon got loose, and a neighbor also has one that wiggles around. We don't claim damages, but see that they are manufactured so as to be firm.

I will hurry to the P. O. with this, or I may think of something else. I shall loose several swarms in the house; winter lingers—lingers; 4 dead out of 20 in chaff; chaff not so much to blame as other causes.

Hartford, N. Y.

J. H. MARTIN.

The honey cart, without doubt, will prove a very handy implement in the apiary. We have used a light wheel barrow, but your arrangement has many decided advantages.

Our neighbor, Blakeslee, used his railway apiary and car for several years very successfully, but while making some changes in his apiary it was temporarily removed. Since then, and for the past 2 or 3 seasons, while working for comb honey, he has not used it.

The sheet of burlap for wintering, described on the page you mention, seemed to answer very well for protection, as far as it went, but the bees packed in that way did nothing near as well as in the chaff hives. During a milder winter, they would doubtless have done well, but the chaff hive has

so well demonstrated its advantages, that I shall, in future, use them entirely for wintering. I have thought of a higher entrance to the chaff hive, but as we must have one also on the level with the bottom board, for the convenience of the bees in removing filth, etc., it would necessitate two entrances, and this would be too much like the cold arrangement we have many of us tried with the American hives. After the experience I have had with them, I feel as if I never more wanted an upper entrance. Thanks for your criticism on the honey knives; it shall be seen to at once.

RED CLOVER AS A HONEY PLANT.

WHEN reading your reply to Jacob Childs, on page 113, I wondered why you did not advise him to sow $\frac{1}{2}$ of his farm (if he has one) with the common small red clover, this very spring. He may have time yet to try the experiment.

I have read Prof. A. J. Cook's essay on "Bee Pasturage," and am surprised that he has not mentioned red clover, at all. Of course we did not get much honey from it or from any other source last season, on account of rainy weather; but in ordinary seasons, it is as profitable a crop for the farmer as wheat, and, with proper management, if we have Italians, or even hybrids, there is no better honey plant in this part of the world. We have raised Alsike for 9 years, and have one field of it yet, but will sow no more, for it is no better for bees than common white clover, and not near as profitable on the farm as red clover.

Here is the way to manage the red: pasture one field till near the middle of June, in this latitude (this is the ordinary practice of farmers here in order to secure a large crop of seed), then turn off the stock; this will be in bloom again before the last clover is cut for hay, and before it fails, the earliest mown will be in bloom the second time; and as we always cut the second crop when good for seed, the last will not be cut till late in September; in fact, as frost does not affect it much, we have some bloom till late in October, in fields too poor for seed, and that have been pastured. Of course, if we have unfavorable weather, red clover, like all other plants, will not secrete honey largely. Here we have a continual bloom of nearly five months, and the bees will not leave it, only for raspberry, Canada thistle, basswood, and golden rod, and they do not last long.

Pure Italians will not leave it for buckwheat. Red clover honey is nearly as nice as white clover, but the pollen is nearly black. You have mentioned this in "GLEANINGS." The above has been my experience ever since we have had Italian bees. GLEANINGS, pages 106 and 107 Vol. 2, tells when that was.

We have only lost 4 swarms yet, and 2 of those were not properly protected with chaff. Of the other 2, one was destroyed with mice, and the other starved. We had crowded the chaff too tight so as to shove the division board and outside combs together, and the bees could not reach their stores.

But, dear me! what a cold April this is!

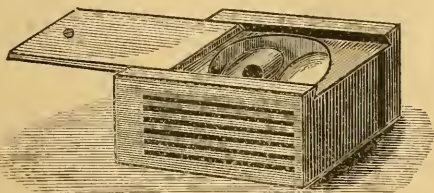
ILA MICHNER.

Low Banks, Ont., Canada, April 14, 1879.

AN IMPROVEMENT ON THE BOTTLE QUEEN CAGE.

MR. LANGSTROTTH has been, for some time, very earnest in his endeavors to bring about that matter of sending queens by mail, and a part of the conditions required by the P. O. dept., seem to have been got along with, but that part which declares so positively that no living animals or insects shall be considered mailable, still remains to be considered. As glass and liquids are positively prohibited, Mr. L. has devised a tin case to hold a sponge saturated with water. I have often thought of tin to

be used in place of the glass bottle, but was prejudiced, because I know that tin will rust when water stands in it a long time, and I have felt as if the little fellows, when obliged to submit to such long confinement and the close air of the mail bags, certainly ought to have the very cleanest and best water and sugar we could give them. Perhaps the tin will do no harm, if the sponge is removed and cleaned each time we send off a cage. To prevent the water from evaporating too rapidly, I have had the tin tube soldered close, and closed with a tight cork, except where the bees get the water through the opening in the side of the tube, which is shown plainly in the figure.



MR. LANGSTROTH'S QUEEN CAGE.

You will observe that the candy is put on the side opposite the tin tube, and that no wire cloth is used. While I think that this arrangement will, perhaps, answer as well for shipping, I cannot as yet see how it is going to answer equally well for introducing queens; for I do not see how they can get acquainted with her as well through the grooves in the side, as they could through the wire cloth. These grooves are made very simply, by dropping the cage on the gang of saws with which we make the sections. These cages, complete, can be sold for about 10 cts. apiece, or \$1.00 per doz. If sent by mail, the postage will be 2 cts. each.

The "Smilery."

This department was suggested by one of the clerks, as an opposition to the "Growlery." I think I shall venture to give names in full here.

THE 4 hives shipped by you on the 18th inst. were received yesterday. They are the first complete L. hives I ever saw, and I am more than pleased with them, they are put up so nicely and fit so exactly. Unless the person ordering is a first rate mechanic, he should never order in the flat. The 5c. bee cage is such a beauty, I am sorry I did not get more.

L. A. ALDERSON.

Atchison, Kans., March 29, 1879.

I am entitled to receive Part Third of ABC, and from what I see in GLEANINGS, I infer that it has been out some time. Now, I am not going to get mad, tear my hair, and write you a hasty letter bristling all over with lightning and such things, but I will just say that I am satisfied the delay is the result of an excusable oversight, during the bustle of business. I know how to sympathize with you.

Washington, Ind., Apr. 3, '79. MILLARD BERRY.

Well, I declare, friend Berry, I just drew a long breath when I got to the end of your letter, and if I could see you, I would like to take you by the hand and tell you how much I appreciate that concluding remark. I am afraid I do not deserve so much, but it gives

me a kind of feeling that if you are merciful and charitable toward me, you will be toward others also. Inasmuch as there are a great many careless people in this world, is it not a blessed thing that there are, at least now and then, those who are inclined to be merciful and long suffering before they complain? You have taught me a lesson, and while I am determined to work even harder, to prevent the clerks overlooking any of your orders, I will try to show the same kind and forbearing spirit you have shown.

WINTERING IN MINNESOTA.

I do not think of going into the column of "Blasted Hopes" this year. I put 59 swarms of bees into winter quarters Nov. 12th, and took out the same number Apr. 7th, all alive and in fine condition.

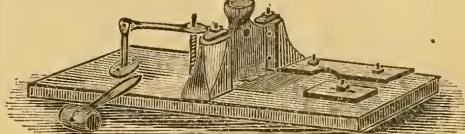
You would better come to Minn. where we have such nice pleasant winters that bees can be wintered without much if any loss.

J. L. GRAY.

Brockway, Minn., Apr. 18, 1879.

DOVE-TAILING MACHINE.

MR. D. T. KIMMEL, Moberly, Mo., sends us a machine for making dove-tails for honey boxes, or other purposes. The peculiar features of it are its small size and simplicity. I think the cut below will make it all plain.



KIMMEL'S DOVE-TAILING MACHINE.

The iron plates seen at the right, adjustable by the bolts, are the stops against which the sections are to be placed. After these plates are adjusted at just the right point, the pieces that are to compose the sections are placed, one at a time, against these stops, and the gate is then brought down, by striking the round top of it with a mallet. The arm shown at the left draws this gate up, with its gang of chisels, by means of the coiled spring. Any blacksmith can make the chisels and the other iron work; a carpenter or the apiarist himself should be able to make the wood work, which should be of some solid, hard wood. The model sent us was made of apple tree wood.

EXPERIMENTS ON FLOUR AND CANDY FEEDING.

CONTINUED FROM LAST MONTH.

IN the April No., page 131, I spoke of egg laying and rearing of young larvae as having nearly ceased, after the bees had consumed nearly all their pollen. Suspecting that the candy which I purchased of Mr. Root contained little or no flour, I found by analysis that the frame given to my bees had none, and on inquiry learned that part of the candy sent me was without flour. I was now confirmed in what I had previously conjectured; viz., that pure candy, where there are pollen supplies in the hive, stimulates breeding. What I lost by the interregnum of breeding was more than made up to me by this discovery. Estimating the loss at—say two thousand young bees, it is evident that it told upon the progress of this stock in a compound ratio, and I judge that it has not now over half the population it would have had, but for this check.

The rate at which successive hatchings enable the bees to spread their brood reminds one of the boy's game of rolling snow-balls; the increase in the size of the ball is at first very slow; but the few last rolls swell its dimensions out of all proportions to the previous ones. Notwithstanding all these deductions, this trial hive has more brood and young bees, and works much stronger than any out of 48 colonies, many of which had more than double its population, when the bees went into winter quarters.

Nearly all the stocks with which I compared it stopped egg-laying last season by the 1st of Sept., and as nothing was done to stimulate the bees, they went into winter quarters poorly off for young bees. This particular stock had been taxed, during the whole of September, in building foundations between patterns, during which time no eggs were laid. I doubt whether one in ten of the old bees is now alive, and, making all due allowance for the extra loss of old bees, caused by such frequent disturbances as my experiments compelled, and by the extra demands of such early breeding, I believe, if left to itself, it would have fared no better than many near me. Some of these have died and others are very weak.

The weather for the last four weeks has been unusually unfavorable for breeding. Severe freezing (8° above zero) destroyed all the early pollen buds. The number of hours when the bees have been able to fly at all would not exceed what they often get in four pleasant days in this latitude. They have gathered very little pollen, but have worked greedily in the flour boxes. But for this, our stocks would have bred very little. Those which have had to depend upon what flour they could gather abroad have made small progress compared with those well supplied at home.

A bee-keeper in this vicinity who has fed no flour informs me that his bees have fairly swarmed upon an open sack of *oil meal flour* (made from flax seed oil cake), to which they gained access in his barn! To-day, my bees have worked well on this oil meal. Has this been tried before?

The following extracts from a letter from Mr. Frances Dunham, of Depere, Wisconsin, will interest your readers:

"In Oct., in fixing my bees for winter, I found a great want of pollen in almost all the hives, probably from its having rained almost steadily for three weeks, in September. In thinking what was best to be done under the circumstances, it occurred to me that I would give them flour: so, taking out a partly filled comb, I pressed flour, with a spoon, into the empty cells. I gave forty colonies about half a cup full apiece, thinking they could do no worse than throw it out. I use the Langstroth hive, and I put wire over the portico, and wintered in a house that never went below 35°. The bees never threw a particle out, and came out of winter quarters so strong that several are almost ready to swarm (April 11th). I lost only four out of forty, while many in Wisconsin have lost from 50 to 75 out of 100, and one person has lost 95 out of 100. Five of my hives had some flour in the outside of the outer frame, as well as in the centre frame; the others had flour only in the centre frame. All in the central frames was consumed, while that in the outer ones was untouched, and had molded. I would say, give the bees plenty of flour in the central frames, where they can keep it dry. Towards spring, I threw a little water into the entrance of each hive with a table spoon. These experiments were on 40 stocks."

Our friend, Arthur Todd, of Algeria, whose interesting experiments were given in the April No., has an article in the *London Journal of Horticulture*, for April 3d, from which I make the following extracts:

"The Germans seem to have decided that there is an advantage to be gained by feeding the bees with artificial pollen, not out in the open air, but in the interior of the hive, basing their calculations upon the laws of natural nutrition. Taking chemistry for their guide, and learning therefrom that every animal body is composed of albuminous matters, fatty matters, and salts, they have studied the bee, and find it no exception to the rule. The bee draws these matters from its food, which consists of honey, pollen and water. It appears that, acting on an appeal from the eminent Baron Von Berlepsch, extensive experiments have been carried on in Germany, during the past year, to determine the question, and at a meeting of the bee-keepers of

Nassau, in August last, a report was presented favorable to nitrogenous feeding, as applied in the interior of the hive. Mr. Weygand reports having obtained the most favorable results, and states that, in his neighborhood, such was the miserable weather (the cold weather &c.) that not ten per cent of swarms was reported; yet those (including himself) who fed the bees with flour inside the hives, increased their colonies fifty and one hundred per cent, and made very good harvests of honey. Another great German bee-keeper (Herr Gravenhorst) reports having obtained the most satisfactory results. This all refers to the spring of 1878. Mr. Weygand prepares his food thus:

"Take one lb. of wheaten flour, adding thereto some salt or a little wine (?), then, with water, make this into a batter, by mixing carefully to avoid lumpiness. In another vessel, put two lbs. of sugar (or if honey, one and a half lbs.), and mix this up in one or two quarts of water. This is now intimately blended with the batter, when it is ready for feeding. This mixture keeps good for several days if necessary. Mr. Weygand states that new milk as well as the egg food is improved by mixing flour therewith, and strongly advises that all feeding be done at night."

More than ten years ago, at the suggestion of Mr. Samuel Wagner, who got the idea from our German friends, I used flour syrup, with great success, for stimulative spring feeding. I would now suggest for trial on a small scale, where ample stores of pollen are not gathered, the feeding in September, of sugar syrup or honey, with a moderate supply of flour incorporated in it and in such quantities that it will be stored up by the bees to be used both in winter and early spring. A little experimenting will show how much flour can be safely added.

With the great attention which has been given to the subject of nitrogenous food for bees, I believe that we shall soon reach results which will prove that the full value of pollen or its substitutes, in the economy of the bee hive, has been greatly overlooked.

L. L. LANGSTROTH.

Oxford, O., April 18, 1879.

I am well aware of the value of flour for promoting breeding, and I tried faithfully, years ago, putting flour into the cells of the comb to get the bees to take it, but I never succeeded. They left it until their brood had increased so much, that the flour kept them from using the cells, and it was finally, as nearly as I could make out, cleaned out and thrown away, by much labor and pains. It is quite likely, however, that I tried the experiment when natural pollen was to be obtained, and that different results would have followed its use in the winter or early spring. I used oil meal for spring feeding, several years ago, while experimenting with a great variety of other kinds of meal and other substances. If I am correct, I gave a report of it in *GLEANINGS* at the time. The bees, although they worked on it, seemed rather to prefer the rye and oats.

••••• SPEED FOR SAWS AND EMERY WHEELS, AND LENGTH OF SAW-MANDRILS.

WHY don't you send or publish a table of speeds at which emery wheels should turn? Neighbor Neal got two 3 in. wheels of you, and wore out one on 3 or 4 teeth of a cross cut saw, before he found out that he had not speed enough. Yes, he was giving you "fits" because you sent him soft, worthless wheels; but when he increased the speed to about 7000 revolutions per minute, he cut the saw without spoiling his wheel. A 3 in. wheel should revolve about 7200 times per minute; a 4 in., 5400; a 5 in., about 4320; a 6 in., 3600. Then not one in a dozen knows how fast a circular saw should travel to be most effective, with the smallest expenditure of power. I make my saw teeth go about 120 to 150 miles an hour. A list of speeds would accommodate some of my neighbors, and perhaps others, if given in *GLEANINGS*, so they could have it for reference.

Many fail in foot-powers, because they do not get speed enough to make a clear and smooth cut.

Again, why don't you make your saw mandrels longer? Don't you know that a longer mandrel is less liable to get out of line with your gauges than a shorter one? It is almost impossible to re-babbit a short mandrel, and leave it exactly perpendicular to the gauge; a 14 inch mandrel, if one box moves 1-64 of an in., would be twice as much out of line with a gauge as one 28 inches long, and 3 times as much as one 42 inches long. Make them as you please, though, for I shall not send for any as long as I can get them at home for $\frac{1}{2}$ the money you charge, and save freight.

Well, if you ever come over the Terre Haute, Vandalia, and St. Louis R. R., stop and see me, and we will talk over all these little differences. I make a few hundred hives for my neighbors, but won't advertise as a hive maker yet. I have an 8 horse power portable engine, doing most of the work. I make my frames out of green white oak, and they don't pull apart worth a cent, after they have been nailed 24 hours; try one and see.

JNO. L. LAFFERTY.

Martinsville, Ills., April 15, 1879.

Thanks for your suggestions and criticisms, friend L. There is so great a latitude for the speed of circular saws, I have never thought it worth while to give a table of the speeds. Emery wheels, I know very well, must have about such an amount of speed, or they are comparatively useless. It used to be the custom, to give the proper speed on a label pasted on the wheel; but of late this has been abandoned. As it is a little difficult to measure the speed of machinery, it has been often the custom to increase the speed until the saws or emery wheels cut satisfactorily, and I do not know but this is about as quick a way of getting at it, as any.

Many have complained of the prices of our mandrels, but, although I have made many inquiries, I have not been able to find any body who could furnish a well made mandrel any cheaper. Dealers in wood working machinery have their prices usually much higher.

THE A B C CHILD THAT GREW SO FAST.

WHERE HE IS BY THIS TIME.

AS I have received private letters from parties asking me to report to GLEANINGS my success in wintering, I will say, I went into winter quarters with 6 swarms, and tried straw packing in large boxes on their summer stands, but found it no protection at all. I lost one the 1st of Jan., and nearly half the bees of all the rest, by frost and ice inside the hives. I moved them into my cellar. The ice thawed out, leaving the combs wet and they soon molded. I bought 3 swarms in box hives making my number 8, all of which got along well until March 8th, when I set them out. I experimented on 3 with rye flour candy, as given by Mr. Langstroth. They bred up well on it, but on being taken out, they chilled and the brood turned black. Two of them swarmed out; one entered the hive containing my Italian queen which you sent me (she had done nicely and filled the hive with the 3 banded bees), and killed the queen and nearly all the bees, and took possession. The other one dwindled all away, and died gradually. All that were fed flour candy, and were the strongest in bees, dwindled badly, and are now weak. Those not fed are strong, and are bringing in pollen lively. I consider the flour candy feeding a bad plan when fed in the cellar. The weather is cold and backward yet, with heavy freezing every night; no buds or blossoms have started. I am not discouraged, as you predicted, but am going into it this summer in good earnest. I have got 1 pk. of Alsike clover seed, \$15.00 worth of fdn., and have sent for 2 imported queens, and believe I know what kind of treatment bees need in this locality for wintering:

1st, strong swarms; 2d, double packed hives, with chaff cushions at each side and chaff pillow on top;

winter on summer stand, with large vent hole at the bottom, and hives tipped forward so all water can run directly out, and 6 frames of sealed honey in each. If put in a cellar, it must be dry, and very dark; no screen will be needed to keep them in, if dark, and no packing is needed. Ninety-five out of every hundred stocks are frozen to death here. They were mostly wintered out. Comb honey is worth 25c here, extracted, 20c. E. A. MORGAN.

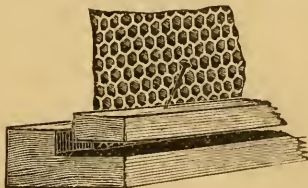
Arcadia, Wis., April 19, '79.

BEE CATECHISM.

- Q. What is the chief end of bees?
A. To get out patent hives.
Q. What is the greatest hindrance to bee culture?
A. Ignorance and patent hives.
Q. What is the best patent hive?
A. The best hive is not patented.
Q. Is there any hive that will keep the moth out?
A. Yes, if tight enough to keep the bees out.
Q. Can moths go wherever bees can?
A. Yes.
Q. But don't some of these patent hives fool the moth?
A. No; they fool the men that buy them: moths know better.
Q. What patent hives are most useful?
A. Those in the barn with hens' nests in them.
Q. But is there not more money in patent hives than in bees?
A. So the patentee thinks.
Q. But how are we to know a poor hive?
A. By the number of drawers and hinges and slides and wires and angles and crevices and hiatuses and hiding places and moth catchers and ventilators, besides several other cunning contrivances to make it sell.
Q. But when the moth eats up everything, what shall we do?
A. Get a kind of bee that will eat them up.
Q. How are we to prevent bees from going off?
A. Give them plenty to do at home.
Q. Who are the greatest bee savans of the country?
A. The men that don't use patent hives and don't care for moths.
Chillicothe, Ohio. J. H. CREIGHTON.

FASTENING FOUNDATION IN THE BROOD FRAMES.

OUR friend, A. Leonard, of Oneida, N. Y., sends us a plan for fastening fdn. into frames, which, although not strictly new, may prove convenient for those who have failed in getting them in as securely as they could wish, by the plans we have given in our circular.

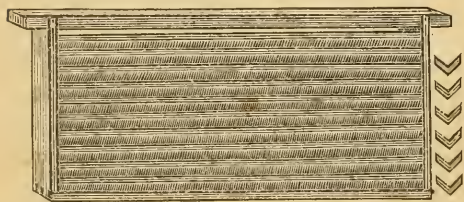


LEONARD'S PLAN FOR FASTENING IN FDN.

Our engraver has told the whole so well with his picture, that one unconsciously looks about for a hammer to drive down that nail. I thought of the same plan a year or two ago, but, as it would be cheaper, I decided simply to plough a wide groove as we do for the wood comb guide, and then crowd in a strip of wood, fitting so closely that a very few brads would hold it and the fdn. securely in place. I never adopted this, however, because we succeeded so well in simply rubbing the fdn. into the wood in our usual way, and because it would necessitate making two kinds of top bars.

ANOTHER FEEDER.

SOME time ago, I told you about the feeder I "studied up" while going to meeting one Sunday morning (dipping a comb into a comb carrier full of syrup) and that it did not work because the syrup wouldn't run into the cells. A few days ago, I thought of plowing a lot of grooves in a board put inside of a frame, and dipping this in the syrup. I told Mr. Gray about it, and the next day he marched into the office with a feeder of his own invention, which is shown below.



GRAY'S FEEDER.

The troughs are made, as you will observe, precisely as we make the corner posts of the chaff hives. After they are bradded inside the frame, each end is dipped in melted wax and we have a feeder that will hold a quart. To use it, just fill your comb holder with syrup, set it on the edge of the hive to prevent waste by dripping, immerse the feeder, set it in place of a comb, close your hive, go on to the next, and so on. There is no possible drowning of bees, and it is perhaps the most rapid feeder in existence, and will feed any kind of syrup, or even pure water. If you do not want to fuss to make syrup, just fill the troughs with sugar, and then pour on a little water. If you want to feed flour, mix in some flour with the sugar, *to be sure*. Now who can beat this for simplicity. They can easily be made, for 15 c., or 12 c. in the flat. Troughs cut to fit any frame, 1 c. each; by mail, 2 c. each.

Ladies' Department.

IN the spring of '78, I began with 5 colonies of Italians and one of hybrid bees. The latter I Italianized. I produced from them 22 new swarms, and besides these, 3 swarms left us. I realized over 200 lbs. of extracted honey, and but very little comb honey, as I wished to increase my stock. I wintered in the cellar, and they came through nicely, not losing a swarm. April 7th. I had them taken out for the summer (they had a fly in March), and found them with plenty of bees, honey, and brood, and in good condition. Do you consider this a good yield?

Delta, Mich., April 10, '79.

Mrs. J. W. GARLICK.

THE TRIALS OF USING HIVES OF ODD SIZES.

You said any one that tried to use things on all sorts of hives, or change them to fit the hive they used, "would get into deep water." I've tried it, and that's where I find I am. Every thing hangs too high or too low, nothing goes in or on or over, as I want it to, and just now I *hate* bees. But one step necessitates another, and to use the sections I've got made, I shall have to have a different crate, etc.

Brocton, N. Y., April 8, 1879.

MARY SIMONS.

I very well know how to sympathize with you, friend Mary, for I have had the same

experience, even to hating the bees; but after I had meditated a little, I concluded I hated the awkward "fixings" my bees were in, and not the innocent bees themselves. Perhaps I have had more trials of that kind than most people, in consequence of my ungovernable propensity to have some new improvement every day. When every thing works right, when hives are exactly alike and each operation can be quickly and easily made, without any stings or killing and crushing of bees, I love the bees; aye, and the bee hives too; and I am firmly persuaded we are getting nearer that golden mean each succeeding year.

BEE SETTLER.

I TOOK an old honey box made for an American hive, 2 ends and one side wood, with 2 corner posts, intended to have three glass sides; one of the ends had a round $2\frac{1}{2}$ in. hole in it. I covered the three open sides with wire cloth, hinged a door to the hole in the end, and bored a $\frac{1}{2}$ in. hole in that end, near the bottom (the wooden side for bottom), for an entrance, and fastened it to one end of a 12 ft. pine pole, with screws. I then made a cover to fit the box, by nailing together three boards 5x6 in., which would fit closely over the box, covering all the wire cloth.

The 15th of May, I put in it one piece of comb full of honey, one piece of comb filled with eggs and brood, a hybrid queen that had been removed to make room for an Italian, and a pint of bees; I closed the door, put on the cover, and closed the entrance for three days. At the end of that time I stood the pole upon a limb of a pear tree, where it would be shaded and at the same time not hid from view, opened the entrance, and the bees went to work; a part of them probably returned to the parent hive. When I thought it was swarming time, and the day was fair and warm, I corked up the entrance and took the box cover off in the forenoon, and every swarm that issued in that part of my apiary settled on the imprisoned and buzzing bees.

It mattered not whether their queen was with them or on the ground, unable to fly, they would always go to the box. Any experienced bee-keeper can easily manage to keep the "settler" stocked with bees, and I would advise all inexperienced ones to let them settle on branches of trees, and by that plan of hiving to get their learning, as we all have done.

Windsor, Ill., April 12, 1879.

S.

I am inclined to think, friend S., that your experiment is a very important step in the right direction. Mr. Langstroth suggested something similar, at the time when D. A. Jones' automatic swarmer first came out. If your bee settler was located on the end of the pole, the bees would be dropped into their hive as nicely as could be without any intervention of the owner whatever, unless, forsooth, they should cluster, as you mention, without a queen. Even this difficulty could be managed, by keeping in the hive a small piece of comb containing unsealed larvae. Now boys, you that are troubled with incessant swarming can develop this idea. Our apiary looks, at present, as though swarming would not be a thing to be worried about very speedily.

FIRST EXPERIENCE IN BEE-KEEPING.

A NOVEL HIVE—A GOOD HIVE FOR FARMERS WHO WANT NO TROUBLE WITH HONEY BEES, AND WANT TO GET CHEAP HONEY.

I obtained my first bees, by nearly running into a swarm, while hunting my cow on horse back. If I had dislodged them, and enveloped myself and horse with bees, it doubtless would have proved a serious matter. Knowing *nothing* about bees,

I got a man to find a box and hive them, giving him $\frac{1}{2}$ interest. Moving out of the village onto a farm, I bought him out, took the bees with me, and set them in the back yard. I got next season one more, and made out to hive them, by putting on a hut and veil. Next season, I got one or two more, hiving them in the same way, and letting them stay out as farmers generally do, paying little or no attention to them, only to hive them, when they came out. Next, I bought another swarm that had been standing for several years, in a little 6x4 house, on a shelf. The owner expected to get surplus honey in that way, but did not succeed. On my way home, I bought a large dry goods box, $2\frac{1}{2} \times 2\frac{1}{2} \times 3\frac{1}{2}$, planed inside and out, and matched tight. Borrowing the idea from the man who had formerly kept them, I thought I would try it on a smaller scale. I fitted the lid of the box tight by putting stops all around, hung it on hinges and fastened it with a button. I then fastened slats on the inside just high enough from the bottom to set my hive on them, and have its top nearly touch the top of the large box, with no bottom to the hive. I stood my large box endwise about $1\frac{1}{2}$ ft. from the ground, and made a shed for it, leaving off one board on the back side. The large box was close to the back side of the shed, and I cut a slot in it, about 4 in. long and $\frac{1}{2}$ in. wide, just opposite the bottom of my hive. I set the bees in and closed the door. The bees went to work and filled one side, down to the floor of the large box, with honey that season, and I took off as much beautiful, white, comb honey, as I dare in the fall, and leave them plenty to winter on. The next season they increased so as to fill the large box about $\frac{1}{2}$ full, from which I took all except what I thought was enough to winter on. We had all we wanted that season, and a little to spare of beautiful, white, comb honey, cut off in large cards. The next season they filled the box so full as to join the comb on to the door, so that, on opening the door, I had to break the comb, leaving comb and honey sticking to the door. I took a large dish-pan full of large beautiful cards. About the time I had filled my pan the bees began to make their appearance and I quickly closed the door, and went to the house rejoicing with my prize. In a few days I looked in and found they had cleaned up their house of all dripping and every thing was clean and neat. Afterwards, I repeated the same operation in the same manner, and took another large dish pan of honey in long and nice cards, filled with beautiful white honey. Having sold my farm, and being about to move into the village again, the question was, what should I do with my bees? I brimstoned my box hives, except the large dry goods box, and took all the honey out. About that time came along a man with a patent hive, selling farm and town rights, who pretended he could divide my large box into several swarms; but who knew nothing about bees more than I did. I foolishly let him the job, and soon saw that he was wasting and destroying my bees. The results were that the queen was lost and the bees all dwindled away to nothing, although I tried to save them. So endeth the first chapter.

A. M. SEYMOUR.

Mazomanie, Dane Co., Wis., Jan. 18, 1878.

A COUPLE OF A B C SCHOLARS.

MY brother and I started last spring with 18 colonies and increased to 47, by dividing. We made somewhere between 12 and 1500 lbs. of honey, mostly comb honey. We put surplus boxes on in July.

A GREAT YIELD OF BUCKWHEAT HONEY.

Along the last of Aug. and through Sep., the buckwheat honey was so "numerous" that it created quite a swarming fever among our bees. We noticed 7 strong swarms that struck out for some other locality; likely where milk and honey flows. The probability is, more absconded of which we have no account; for we paid very little attention to them at that time. We have some Sept. swarms in a good condition. One of my neighbors has a late Sep. swarm in a hive containing nine, 12x12 frames, jammed full. We also had some in the fall of '77, that issued about the 20th of Sep., and were among some of the best in the spring of '78.

We use 3 kinds of hives, all of different sized frames, to which you no doubt object vehemently, and so do we, but will try and "wiggle along" the best we can, until we get to a uniform frame. Our bees are all in good shape except 3 colonies. One

absconded for some cause unknown to us; perhaps you can tell why. It had lots of capped honey and a number of eggs. The combs were bright and the hive was clean. One got robbed in spite of all the ingenuity that I could use.

SOMETHING ABOUT ROBBING.

I first closed the entrance a short time entirely; to this you object, I know, but I have done it frequently with no bad result. I got them checked in this manner, and then opened the entrance large enough to let but one bee pass at a time; but the robbers soon made a raid on them again, and their numbers kept increasing. I next covered the hive with cloth, but to no effect. Finally I moved it from its old stand some distance away. That checked them for several days, but at length they got trace again of the rich stores on which they had previously enjoyed themselves so well, and played havoc with the whole business. The colony robbed was black, and when I first noticed them, the robbing was done entirely by blacks; the weather was rather cool, and no Italians were outside of the hives. Are the blacks more roughish than the Italians? Can you tell? When the battle was pretty nearly won, some of the hybrids and full bloods turned in and helped, as though their conscience didn't allow them to take part in the beginning. This is the way the one colony went, and one died for want of a queen. We knew it was queenless last fall, but thought it might go through, and be strong enough to build up in the spring. So you see, we have had pretty good success thus far.

We got a tested Italian queen from Anderson, Tenn., in the spring of '78. It was a fine one, and we had good success in Italianizing. If I am not mistaken, you don't approve of extracting from the brood comb. If so, what is your objection.

Morrisville, Ill., April 9, '79. A. D. STUTZMAN.

Your account of your buckwheat yield, friend S., is quite exciting to me. I do not know that I ever saw such a yield here. If I had so many different sized frames in one apiary I think I should "wiggle" them down to one kind, in about one afternoon. The stock you speak of, that would not repel robbers could have been saved very quickly, by giving them one frame containing your Italians just hatching out. As soon as they were a few days old, they would have shown the robbers where the door way was located. My objection to extracting from the brood combs is that there is always a risk of bees starving, if the honey yield happens to cease suddenly. The sealed honey nearest the brood nest is always in just the best shape for winter, and I have not found it good policy to disturb them after they have it all around the brood, just as they are most apt to need it. You and your brother have done well very indeed, for beginners. I do not object to closing the hive to prevent robbing, unless the number of bees inside is very great, and the weather very warm; in this case, they often smother and melt down the combs. The blacks are certainly worse to rob than the Italians.

A LARGE COLONY OF BEES AND WHAT CAME OF IT.

BELIEVING that the following should be put on record, I write you. Among various colonies of bees I sold last year, I sold one to neighbor T. In May last, he put the colony in a hive 6 ft. long, filled with frames of combs, each $10\frac{1}{2}$ by 12 inches. His plan was to prevent them from swarming, and extract the honey. In the course of time, his hive became so filled with bees and brood and queen cells, that he destroyed the queen cells and put on a second story of like size, supplying them with 52 frames of comb, and enough more empty frames to fill both stories of this 6 foot hive. About the middle of July, at the close of the white clover yield, he reports to me, that he found 36 of those cards of comb entirely filled with brood in

its various stages of development, and not 5 lbs. of honey in the hive!

As the hive already contained an enormous mass of bees, he thought all bees and no honey would be unprofitable; and to prevent more honey from being consumed in brood rearing, he killed his queen. When he told me of this fact yesterday, I replied that such a queen was worth at least ten dollars; and he still insisted that she was not worth ten cents!

For several years, I have thought my breed of bees more than usually prolific, and when properly managed, profitable in like ratio; but I have no figures to prove that I have ever had any other queen as prolific as that. Estimating 100 square inches of brood on each surface of each one of the 36 combs, we have a total of 7200 square inches of brood, which, at 25 bees for each square inch, gives 180,000 eggs, which must have been laid by the queen in three weeks, the period of incubation. This would be at the rate of 8571 eggs, laid by one queen, during each 21 hours, for a period of 21 days at least!

To me, such figures seem almost incredible, and yet I have not the least reason for doubting neighbor T's word, and I know that he has handled bees long enough to be qualified to distinguish brood from capped honey, and to make such observations correct.

St. Johns, Mich., Aug. 19, 1878. G. E. CORBIN.

I am well aware that a queen is occasionally found that will lay enormously, and a brother-in-law of mine had a queen one fall, that reared such an amount of brood, his wife begged him to slice their heads off, in the way they had drones in July. I paid \$10.00 for the queen and bees after taking a look through the hive. The bees were hybrids, and as the queen did not prove more than ordinarily prolific the next season. I put an Italian queen in her place. It would be interesting to know whether such queens would transmit their extraordinary qualities of fertility.

VERY THICK COMBS FOR THE EXTRACTOR.

ARE THEY ADVISABLE?

WHEN I read your plan for a chaff hive, the lower frames of which were to be smaller than the upper, and considered the fact that the queen could be kept below by having the combs built very thick, I exclaimed "Eureka, at last!" Now I do not want to exchange frames with the lower story, if I can exclude brood from the upper frames. Before using the upper frames, which in my locality would not be before white clover blossomed, I would spread the brood and give the queen a chance to control all the room she desires below. Then most of the honey would be stored above, where the bees seem to want it, and where it is most convenient for us to get to and remove. But your answer to my postal has given me a "set back." Such thick combs, you think with Muth, may be at the expense of honey. I want nothing in the way of that, for I see that honey should be sold near home, and when home is near poor people, it must be sold cheap, and to make it pay, must be sold in large quantities. Now while I think of it, why educate people to buy it in small quantities? Why not offer it by the gallon, in tin pails, enough cheaper than in small jars, to induce people to buy more and use more? It is difficult here, in our small towns, to get 15 cents for comb honey in small packages. People want only a little for a treat. Eight eets for extracted honey or \$1.00 per gal., is better in a locality like this, far away from large cities, and it seems to me, it could be made a more common article in the homes of all, if sold in larger quantities, say by the gallon, \$1.00 or \$1.25 per gal. By extracting, we also have a much better chance to control swarming—no small item when you have bees enough and can not sell them. But I am getting away from the subject of thick combs. Before I resume, I must say I want the most convenient arrangements for extracting honey that I can get—a hive which, if I wish, I can also run for comb honey, for those who must gradually be broken off from eating beeswax, or for those who want it to set off the table; but such must pay for it about twice what I

sell ext. honey for, and I would not try to sell in large boxes. Mrs. Axtell says she is troubled very little with brood in upper frames, when she moves them a little farther apart than she has the lower ones (see page 80, GLEANINGS). Tell me what you think of it. Will a distance less than 2 in. exclude all, or most, of the brood from the frame I am using (frames running crosswise of a simplicity hive)? Would the same thickness or depth of cells in drone comb exclude brood? The cells being larger than worker cells, I thought it might be easier for the bees to store and evaporate in large cells, but it might also be easier for the queen to lay a lot of drone brood there. I fear these thick combs may be more objectionable for the extractor than boxes, as bees can and do store honey in new comb before it is completed, but when returned to them from the extractor, they must work in the completed cell. From what Doolittle says about evaporating honey, it may be nearly as much work as gathering and storing.

Waverly, Iowa, March 22, 1879.

J. B. C.

THE SWEET PEPPER.

AN engraving of this plant appears on the page opposite. I have never seen the plant, but have been induced to give it a place, from the favorable notices it has of late received. I have ordered some plants and hope to give them a fair test on our own grounds very soon. Mr. A. Parsons, of Flushing, N. Y., gives the following account of it in the *A. B. J.* for Feb.

Here on the Atlantic coast, if bees winter and are strong, swarming occurs in June, and again in August, when the sweet pepper bush comes into bloom. Our people and the school children call it honey dew, from its delightful odor; in fact, the plant is known here by no other name.

It grows wild in the greatest abundance in the swamps and wet places, and I never knew it to fail from any cause whatever. Dry seasons do not affect it, because its home is generally in wet places; and again, no cold appears ever to harm it. The honey is about white, thick, and of fine flavor.

We extract the following from the catalogue of the nursery man, Mr. J. W. Manning, of Reading, Mass., who furnished us the cut of engraving, and who will furnish plants.

Its leaves are light green; flowers are pure white, in spikes 3 to 6 inches long. A group of this Clethra in bloom will perfume the air for 20 rods around; a handful will fill a room with its delightful fragrance. It blooms from July 1st to September. Its cultivation is simple, as it grows to perfection where the lilac will succeed. It never fails to bloom after a hard winter.

Its effect is impressive when grown in large masses, as produced by a dozen or more plants set in a group. It has never been well shown to the public as in Central Park, New York.

Immediately after the February number of the American Bee Journal had appeared, numerous letters came to us from New England to California, and from the Gulf to the Lakes, and beyond, to learn of the supply, culture, price, &c. We have to say that it grows to perfection in our grounds, on what was cold, springy land now underdrained. It is readily increased by suckers and layers, as freely as the old Purple Lilac. A strong plant in fertile soil can be made to increase in three years, by suckers alone, to at least one hundred plants. It is safe to claim that in a few years the planter of a hundred plants will soon cover many square rods, and the planter of a thousand plants can extend its culture to acres of the most profitable forage it is possible to provide for his bees. It blooms on plants 1 to 8 feet high, according to its age or strength of soil to produce vigor of growth. In the West it will doubtless succeed to great perfection where the hazel bush delights. It will grow where corn will, or in the shade of higher trees. The Clethra will grow and afford rich pasture to the bee wherever it may toil for honey. It puts out leaves late in spring. We plant it here till May 15th, and from October to December. To plant for ornament we have advocated it for 20 years. To plant it largely for bees is not a doubtful experiment, nor is it an expensive one.



CLETHRA ALNIFOLIA, OR SWEET PEPPER.

Humbugs & Swindles,

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

ENCLOSED, you will please find one of N. C. Mitchell's cards. The post master handed it to me. I thought he had been ventilated so thoroughly in GLEANINGS that he had quit.

HUGH HARRIS.

Moundsville, W. Va., Mar. 15, 1879.

POST MASTER:—If you will send us a postal card with the names of bee-keepers who get their mail at your office, we will send you a copy of the *Bee Keepers' Directory* free. If you do not wish to comply with our request, please hand this card to a bee-keeper and oblige

Yours truly,

N. C. MITCHELL.

Indianapolis, Ind., Feb. 27, 1879.

I give this to show how Mitchell gets hold of bee-keepers to push his system of black mailing, and to guard you against giving him a cent of your money, or paying any attention to his threats.

The following excellent piece of advice for ministers and other folks comes from our energetic friend of the *Prairie Farmer*, Mrs. Lucinda Harrison.

ANOTHER HUMBUG.

SILVER RUN, ALA., Feb. 17.

Mrs. L. H.;

I see your initials connected with bees, hence I write you a few lines; hope you will take an interest in and publish my note below in relation to bees, and very much oblige a poor old preacher.

Yours truly,

J. G. JENKINS.

By close observation and experience I have learned how to prevent the moth or fly from interrupting the bee hive. Any one sending me \$5.00 handing this to an editor for publication, and he sending me a copy containing publication, I will inform, name and post office being plainly written.

Well, well, my observing friend, you are behind the times with your invention; for moths in bee hives are out of date. Italian bees are in fashion, and they are death to the "varmint;" a tea-cupful of these bees in a hive will keep out the moths from the combs; and if combs containing worms are inserted in an Italian colony, these gentlemen are rolled out on the double quick.

You say you are "a poor old preacher." You cannot help being old, but if you are a preacher you ought to be a good one, and if you sell your ideas on religion as dearly as those about bees, you ought to be rich. We are a liberal people in Illinois, and you can't find a bee-keeper that will not rejoice at the opportunity to show his hives and bee-traps, and will tell you all he knows about bees, putting your horse in the stable, and feeding you on "milk and honey." If you are a Methodist preacher you would get a "yellow legged chicken," to boot!—all free gratis, with an invitation to call again, that the "latch-string hangs out." Five dollars invested in bee-books will let you into all the secrets that are behind the curtain. "Away down in Alabama" would be a good place for Mrs. Lizzie E. Cotton (I'm happy to say that she is a man) to have her advertisements circulated. She, or rather he, doesn't sell hives and bees, but bugs—bugs that hum.

Peoria, Ill.

Mrs. L. HARRISON.

While I sincerely hope that the above may strike home deeply, to ministers who are lending themselves to the sale of patent hives and receipts, I feel like begging for a little charity for that very class. Ministers, like editors, bee-keepers, and other folks, some-

times allow themselves get into queer ways of thinking, and could we know them intimately, we might see, at once, that they are more deserving of pity, than censure. While the public good demands that they should be shown up unsparingly, let us try to have a broad charity for the erring. If, as is likely the case, the man is no minister at all, the case is quite a different one, reflecting not on ministers but on those who pretend to be ministers for the purpose of gain.

Juvenile Department.

I AM only 16 years old, and yet I am "a bee-man." Last fall, father bought and gave to me 2 "oll gums;" we left them out in the cold all winter without losing any. This spring he bought two more which he also gave me. The first he gave \$2.00 apiece for; the last he gave 50 cts. for. We have just finished transferring the last two into the Langstroth hive, therefore, you see, we need fdn. Now listen! the other night, while we were using the smoker (Simplicity), the damper got stuck to the bottom of the smoker. Now I think you ought to make some kind of an improvement on it; such as burning the damper and bottom of the smoker well, before you put it together. I have no doubt but that a good many of your readers have had a like experience.

DAVID S. BETHUNE.

Snyder, Ashley Co., Ark., March 23, '79.

Thank you, friend B. I think you will find no such trouble with the cold blast smokers. I am glad to hear that you succeeded in transferring. You are starting in the right way, with a few colonies purchased cheaply near home. It is your business now to build them up so they will be worth \$10.00 apiece, instead of from 50 c. to a couple of dollars.

GETTING QUEENS TO LAY IN QUEEN CELLS, ETC.

WHEN I received my queen I put her in a nucleus that had been queenless about four days. They had queen cells started and some of them contained larvae. I didn't destroy the cells but removed the larvae. A couple of days after, I opened the nucleus and found that she had commenced to lay and had deposited an egg in one of the queen cells. I immediately cut this cell out and inserted it in another nucleus, thinking that she would deposit eggs in the rest of the queen cells, but she would not do so. The idea then occurred to me that it was because they had contained larvae. So to test the matter I got some cells that contained larvae and some that didn't, and inserted them in the nucleus. She very soon deposited eggs in those that had not contained larvae, so I cut these cells out and inserted them in other boxes to be mated, and kept on inserting cells until I got enough. I fed them liberally every night. Now mark the result of my operations: I obtained a lot of the nicest queens, and I believe, as large ones as I ever saw. They were uniform in size and color, being larger and yellower than their mother—the queen I purchased of you. Now, a word about artificial queens. Some think they are inferior to queens reared naturally. I think that the method I have described is natural with one exception, I could not get them to build the cells, but I cannot see how this would affect the matter any; if the eggs were laid in the cells it would matter not what bees built them. My experience does not prove to me that artificial queens are inferior to natural ones, for more than one-half the queens in my apiary are and have been for 3 years artificial, and I can see no difference in their prosperity. As good a queen as I have, was reared from brood that I obtained several miles away. She is but very little larger than a worker, yet she is very prolific.

LEROY W. FANKIRK.

Washington, Pa.

PREVENTION OF SWARMING BY THE USE OF THE EXTRACTOR.

Without doubt, the greatest reason for swarming is that the bees have got their hive full of honey, and there is no more room for them to labor to advantage; accordingly queen cells are started, and other preparations made, and they get, as we say, the swarming fever. Now, if their honey is taken away, and more room given them, before they have begun to feel cramped for room, they will seldom get this swarming fever. This room may be given by taking out combs filled with sealed honey, and substituting empty combs or frames of fdn., or it may be done by extracting the honey. This latter plan, I believe is most effectual, for almost every drop of the honey can be taken away by extracting. We extract from the brood combs as well as from the rest, and this can be done without any injury to the brood, if we are careful not to turn so fast as to throw out that which is unsealed. I would only do this, however, in extreme cases, where the bees will not work, and are determined to swarm. The honey around the brood is generally needed there, and would better not be removed. It should be remembered that this remedy to prevent swarming is not infallible, and I do not know that any one is, at all times. I have known a swarm to issue the day after extracting all the honey I could get from the hive, but they had probably got the swarming fever before any extracting was done. At another time, the bees swarmed while I was extracting their honey.

HOW TO MAKE A COLD BLAST SMOKER.

Both kinds are made of two sizes. The boards for the bellows of the common size are 4 by 5½ inches; for the large size, 5 by 6 inches. The thickness is about ¾, or as thick as you can plane them up nicely when two are got out of an inch board. The lumber usually preferred is basswood, because it is light, and not apt to split. Where smokers are to be made by the quantity, I would cut the inch boards into lengths of 6 or 8 ft., split them up 4 or 5 in. wide, as the case may be, split them edgewise, and plane the pieces on both sides. We put them in bundles precisely as we do the stuff for our section boxes, using the same iron clamps. Before clamping them, however, a groove is to be ploughed in half of the boards, to hold the spring for opening the bellows. This groove is exactly in the middle, ¾ in. wide and 1-16 in. deep. When clamped, bolts are to be cut

off (as in making sections) with a saw large enough to go through. If no such saw is at hand, they may be cut in from each side. After the bolts are cut, a corner is to be taken off as shown in the cut below.



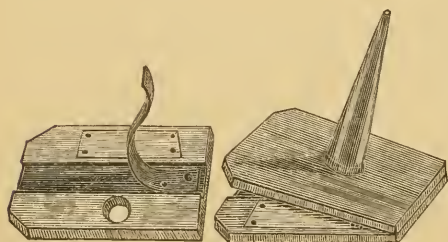
BOARDS FOR SMOKER BELLOWES.

This corner is taken off, that we may have the leather all bulge outward, when the boards are closed together; that is, we wish the whole to be so made that the boards may be pressed tight against each other, expelling every bit of the air, the spring being made to lie in a groove for this purpose. When the corners of the bolts are off, the whole bolt is to be nicely sand-papered, and the edges of the boards planed, so that each board is finished nicely when taken out of the clamp. Just half of the boards are to have an inch hole bored in them, to put in the blast tube, and the other half are to have ¾ holes for the two valves, to admit air. By far the cheapest way to bore these holes is while the boards are clamped together. Have a long bit that will bore clean and smooth, and decide, by measuring, when it is through just half the boards. In this way, it takes but little time to get the boards ready for a thousand smokers, for they are never handled singly at all.

For the leather, you want some soft, smooth, sheep skin, and the piece needed for the medium size is 19 in. long, by 2½ wide, in the middle, and gradually tapers to only ¾ in. in width, at each end. For the large bellows, the length is 23 in., the width, in the middle, 3 in., and ¾ at the ends. You will also want some strips ½ in. wide, and as long as these pieces, for a binding, when the leather is tacked to the boards. The whole of the leather for a smoker should not cost to exceed 10c, for we can get a whole piece large enough to make 8 or 10 smokers for only 50c. To have the leather bulge outward, as I have before explained, it should be stretched in the middle, and pressed outward before being tacked on, and when the bellows is first closed, the leather must be pulled out; when once it gets the habit of folding right, it will do so ever afterward. Besides the tacks, the leather should be fastened to the wood with glue, to get an air tight joint.

The valves are simply pieces of soft leather tacked over the holes; for a ¾ hole, you want

a piece of leather about $1\frac{1}{2}$ by $3\frac{1}{2}$, putting a tack in each corner. In making bellows, there will be fragments of leather left, that will do for nothing else. Such valves work beautifully, are absolutely air tight, and I hardly know how they can get out of order. The blast tube is made of tin, tapering like the spout to an oil can. It is made just as large, at the large end, as it can be, and be driven into the board; $\frac{1}{2}$ inch from the end, a rib is raised, to prevent its being driven in too far, and the inside is then burnished down hard and close to the wood, making it firm and air tight. The short tube in the cone is made and attached to the cone, in much the same way.



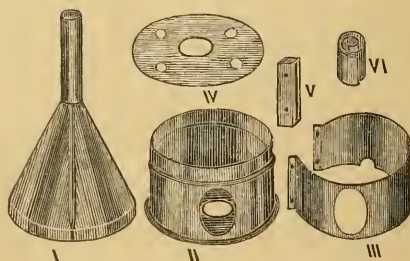
MAKING THE BELLOW.

The springs shown in the figure above, are made of bits of clock spring, to be had of any jeweler. You can get a whole clock spring for 20c., which will make 6 smoker springs. Bend the springs to the shape shown in the cut, and rivet the end to the wood, by two secure rivets. Steel springs sometimes break, it is true, and you can use similar ones made of brass if you choose; these never break, but they almost always lose their elasticity sooner or later. For my own use, I prefer the light springs called alarm springs, because they are softer, and it is easier to work the bellows. As others generally prefer a stiff spring, those we sell are made that way. Bend your springs so that the boards will come up promptly, as far as the leather will allow. To make a neat job, you should put on the leather with tinned tacks, about 7-16 in length. Put the boards closely together at the end where the hinge is, and tack one end of your long piece of leather. The boards should be separated at the other ends, as far as the width of the leather will allow. Draw the leather close up to the wood, and tack at intervals. Now tack the $\frac{1}{2}$ inch strip on for a binding; if you wish a pretty job, use red morocco for this last. When your tacks are all in—I would drive them a little more than $\frac{1}{2}$ inch

apart—you are ready to pare off the surplus leather with a very sharp knife. Finish off everything neatly with sandpaper, and your bellows is done. The leather has cost us 10c., the two boards, possibly 5c., and the spring 5 more. Allowing 5c. for your time in tacking on the leather and sand-papering, and you have a good bellows for 25c. For this price, it should be as good as anything in the market.

The tin cup shown below, is 4 inches in diameter, and $2\frac{1}{2}$ high, and the nozzle is made to shut closely over it. I prefer about a $\frac{1}{2}$ inch tube for the exit of smoke.

Now I take considerable pride in telling you how I attach the whole to the bellows, damper and all, for I consider it quite an invention in the way of cheapness, strength and simplicity.

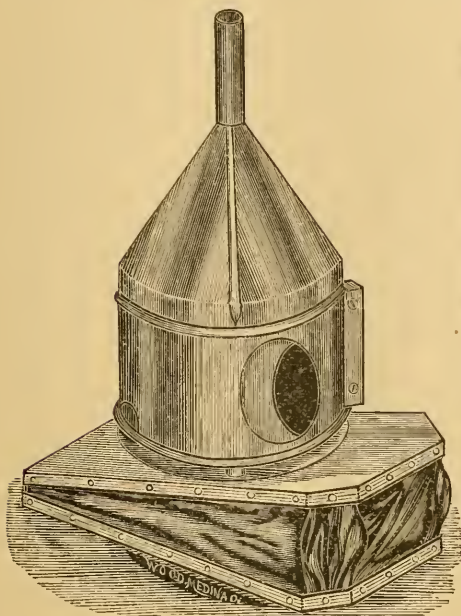


SMOKER "DISSECTED."

Fig. 4 represents the bottom of the smoker cup. The large hole in the center is to allow the blast tube to come up through, and the smaller ones are for 4 common screws that attach it to the bellows.

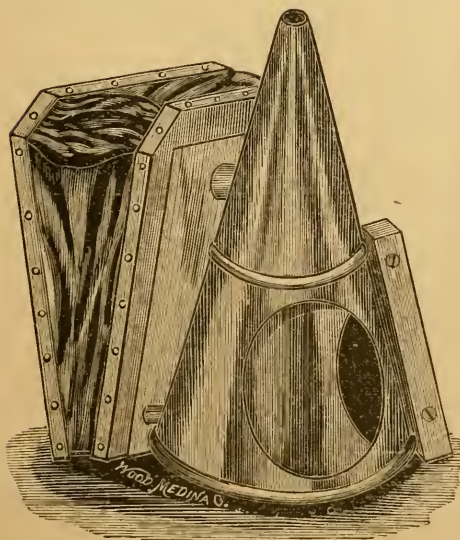
Now we cannot screw the fire receptacle directly on to the wood, because it would burn it; but I have found by experiment that 1-4 inch space between the bottom and the wood is all that is needed, if the wood is first covered with a sheet of tin. Accordingly, we cut another plain piece of tin, exactly like Fig. 4, holes all and all; between the two, we put short tin tubes, made by rolling up short strips 1-4 inch wide. These short tubes, shown at Fig. 6, are made so that a screw will just go through them.

With the old Simplicity smokers, much complaint has been made about burned fingers, when getting the top off to replenish the fuel. You will observe in this that we have made a door, with a slide to close it, and this slide also opens and closes the damper. It is simply a ring of tin, surrounding the first receptacle, having a wooden handle to turn it by. Should this ring ever turn too hard, the screws may be taken from the handle, and a piece of pasteboard inserted so as to make it a little larger.



SIMPLICITY COLD BLAST SMOKER.

The tin cup will probably cost you, at a tin-smith's, about 5c., and the funnel probably as much more. The damper, short tubes, etc., will cost about another 5c., and this will make your smoker, complete, cost about 40 cents. Good strong boxes for mailing will cost about 5c., and this leaves us 5c. profit on each when they are sold by the dozen. Any dealer in bee-keeping supplies should be able to make them at the above estimate, and if machinery is employed, they may be made for a less amount.



CLARK'S COLD BLAST SMOKER.

This differs from the Simplicity, in having a fire pot made of a single piece of tin, with tapering sides, like an oil can. The engraving given below will make the tin work plain to any tinsmith. The bellows is precisely the same as the Simplicity except that the hole for the blast is near to one end.

The blast of air is brought through the screw that attaches the can to the wood. This screw should be 1 inch long, and 3-8 in diameter. Drill a hole through it, lengthwise, as large as can be made without breaking the thread. This screw is to be soldered with its head inside of the small cone; the small cone is then put in place inside the large one, with that portion of the screw containing the thread projecting through both of them; the screw is soldered to the large cone, and screwed fast into the wood of the bellows, the can being held a proper distance away from the wood, by the short tin tube, as in Simplicity. The lower part of the tin can is now attached to the bellows by two smaller screws in a similar way. You will observe that after the screws are all in place the solder is not needed, and if it melts off it does not matter. Many think this style of smoker more convenient, but I confess, after having so long used the Simplicity style, I rather prefer it. Both are put together with screws, in such a way that they can easily be taken to pieces for repairs, or for renewing the different portions, if need be.

SAGE (*Salvia*). This plant also belongs to the great family of *Labiata*, or the mint family. Labiate means lip shaped; and if you look closely, you will see that plants belonging to this family have blossoms with a sort of lip on one side, something like the nose to a pitcher. Many of this family, such as CATNIP, MOTHERWORT, FIGWORT, GILL-OVER-THE-GROUND, have already been mentioned as honey plants, and the number might be extended almost indefinitely. The sage we have particularly to do with is the white, mountain sage, of California; and I do not know that I should be far out of the way, in calling this one of the most important honey plants in the world. The crops of honey secured from it within the past ten years have been so immense, that the sage honey is now offered for sale in almost all the principal cities in the world, and a nice sample of well ripened California honey, whether comb or extracted, is enough to call forth exclamations of surprise and delight from any one who thinks enough of some-

thing good to eat, and pleasant to the taste, to commit themselves so far. I well remember the first taste I had of the mountain sage honey. Mr. Langstroth was visiting me at the time, and his exclamations were much like my own, only that he declared it was almost identical in flavor with the famed honey of Hymettus, of which he had received a sample some years ago. Well, this honey of Hymettus, which has been celebrated both in poetry and prose for ages past, was gathered from the mountain thyme, and the botany tells us that thyme and sage not only belong to the same family, but are closely related. Therefore it is nothing strange, if Mr. Langstroth was right, in declaring our California honey to be almost, if not quite, identical in flavor with the honey of Hymettus. This species of sage grows along the sides of the mountain, and blossoms successively, as the season advances: that is, the bees first commence work on it in the valleys, and then gradually fly higher up, as the blossoms climb the mountain side, giving them a much longer season than we have in regions not mountainous. Below we give a cut of the plant.



CALIFORNIA WHITE MOUNTAIN SAGE.

One striking peculiarity of this honey is, that it does not candy, but remains limpid, during the severest winter weather. I have taken a sample so thick that the tumbler containing it might be turned bottom up-

ward without its running at all, and placed it out in the snow, in the dead of winter, and failed to crystallize it. This is a very valuable quality of it, if it is invariably the case; for we all know full well, that the candying tendency is a great drawback to the sale of extracted honey. I presume the honey should be fully ripened in the hive, to have it possess this property, as it is well known that perfectly ripened clover honey will often possess this same property here, while unripened honey, of any kind, is much disposed to candy at the approach of cool weather. I believe some effort has been made to cultivate this plant; perhaps a soil that raises pennyroyal naturally, would suit it, as they are nearly allied, and I have been told that pennyroyal yields considerable quantities of honey, on the waste lands of Kelley's island, in Lake Erie.

It has been said, that one soon tires of this beautiful aromatic flavor of the mountain sage, and that, for a steady diet, the white clover honey of the Western Reserve far out-rivals it. This may be so; for, as a general thing, I believe people usually tire of these strong and distinct flavors in honey, like those of basswood and mountain sage. For all that, dear reader, if you have never tasted mountain sage honey, and are a lover of honey, there is a rich treat in store for you, when you do come across some.

Since I have been writing about the sage, I have concluded to have a bed of it on my honey farm, where it will be a curiosity to visitors, even if it does not yield honey here as it does in California. Now let us see who will have the nicest flower garden of honey plants. Not a patch all choked up with weeds, and scattered about in wild disorder, but a real pretty little garden. You can roll up your sleeves and set to work at it this very minute, if you wish.

TURNIP. The turnip, mustard, cabbage, rape, etc., are all members of one family, and, if I am correct, all bear honey, when circumstances are favorable. The great enemy of most of these in our locality (*especially* of the rape), is the little black cabbage flea. The turnip escapes this pest, by being sown in the fall, and were it not that it comes in bloom at almost the same time when the fruit trees do, I should consider it one of the most promising honey plants.

In the summer of 1877, Mr. A. W. Kaye, of Pewee Valley, Ky., sent me some seed of what is called the "Seven Top Turnip," saying that his bees had gathered more pollen

from it, in the spring, than from anything else. I sowed the seed about the 1st of Oct., on ground where early potatoes had been harvested. In Dec., they showed a luxuriance of beautiful green foliage, and in May, following, a sea of yellow blossoms, making the prettiest "posy bed," I believe, that I ever saw in my life, and the music of the bees humming among the branches was just "entrancing," to one who has an ear for such music. I never saw so many bees on any patch of blossoms of its size in my life, as could be seen on them from daylight until dark.

Friend K. recommended the plant particularly for pollen, but, besides this, I am inclined to think it will give more honey to the acre than anything that has heretofore come under my notice. We have much trouble here in raising rape and mustard, with the small turnip beetle or flea, but this turnip patch has never been touched; whether it is on account of sowing so late in the fall or because the flea does not fancy it, I am unable to say. The plants seem very hardy, and the foliage is most luxuriant, much more so than either the rape or Chinese mustard, which latter plant it much resembles, only having larger blossoms. As our patch was sown after the first of Oct., and the crop could easily be cleared from our land by the middle of June, a crop of honey could be secured without interfering with the use of the land for other purposes.

Friend K. also recommends the foliage for "greens," and says that he sows it in his garden for spring and winter use. We tried a mess of greens from our patch, in Dec., and found them excellent. Our seed was sown in drills about 1 ft. apart.

If I could get a 10 acre lot covered with such bloom during the month of August, I should not hesitate an instant to hand over the money for the necessary expenses. If we cannot get the blossoms in August, we can certainly have an abundant supply between fruit bloom and clover.

WINTERING. My friends, if you have been over faithfully, what I have written in the preceding pages, you are nearly ready to sum up the matter of wintering with me, with but few additional remarks. Under the head of *ABSCONDING SWARMS*, in the opening of the book, I cautioned you against dividing, and trying to winter weak colonies. See *Absconding in Early Spring*, under the head mentioned. Also see *House Apiary*, under head of *APIARY*. In regard

to keeping bees warm through the winter with *ARTIFICIAL HEAT*, see that head. In regard to the effect of different kinds of food or stores on the welfare of bees during winter, see *DYSENTERY*, *FEEDING AND FEEDERS*, *CANDY FOR BEES*, and *HONEY DEW*. In regard to fixing the size of the entrances to hives and keeping them from getting clogged with dead bees, see *ENTRANCES TO HIVES*, *VENTILATION*, and *PROPOLIS*. In regard to starving bees, and taking away their sealed stores, allowing them only unsealed, late, fall honey, see *EXTRACTORS*. For a consideration of the different sizes and shapes of frames for wintering, see *NUCLEUS*.

After you have gone over all these, I think we are ready to consider wintering intelligently.

WHEN TO COMMENCE PREPARING THE BEES FOR WINTER.

If either bees or stores are lacking, they should be supplied during warm weather, so that all may be quiet and ready for the winter doze which nature intends them to take, long enough before winter weather has actually set in. In this latitude, I should advise examining all hives the first of Sept.

In the first place, be sure that you have bees enough in each hive to winter; if you have not, unite until every colony is strong. I would not undertake to winter any colony, unless it would cover well, as many as 4 L. frames. If your colony has not as many as 4 good combs, they must be supplied with fdn., and made to build them out. If they are to do it in Sept., you and the bees both must stir yourselves, I tell you. There must be no forgetting them, and you must be at home every day, to attend to it. Close the space up by chaff division boards, until there is just comfortable room for the 4 frames, put in your fdn. where the combs are lacking, and then feed them every night, from a half pint to a pint of food. Open the hive every day or two, and see how things get along. You want a good queen and lots of brood started. Make them prosper, and build up. You will soon learn to know what prosperity means. They should be rearing brood, building comb, and getting full of bees, precisely as they do in June. For winter stores, I would use coffee sugar (see *FEEDERS AND FEEDING*); feed them about a half lb. every night, until their combs are full. If you have the 4 combs average about 5 lbs. each, you will be on the safe side. If your colony is heavy enough to

cover 6 combs, clear out to the ends, during a cool night, they will perhaps need 6 combs filled so as to average 5 lbs. each. When you get the bees, and the stores, with the chaff cushions on each side, they are all ready to winter, by simply putting a thick chaff cushion over them. This arrangement is not as good as a regular chaff hive, but it has answered for several seasons past, quite well. If the winter is very severe, a colony that would cover densely 5 or 6 combs would be much safer than a smaller one. The main points are, a brood apartment closely packed with bees, and plenty of good sealed stores. With these two conditions alone, the bees will generally winter all right, even in a hive made of inch boards. If the bees are not enough to fill the hive, reduce the size of the apartment until they do fill it. This is usually done by a division board. If the walls of this wintering apartment are made of thin wood, the bees will then keep the thin walls of the hive, as well as themselves, warm all winter, and we shall then avoid the loss that often ensues by bees continually freezing in the outside combs. This is the purpose of the chaff hive; it is of about as much use to put chaff and straw over the outside of great heavy hives, as it would be to put your bed clothes on the roof of your house, instead of next to your body, on a cold winter night.

VENTILATION AND ITS RELATION TO FROST AND DAMPNES.

I think the subjects of chaff packing and ventilation are not clearly understood. Bees become damp because the walls of the hive are so cold as to condense the moisture from their breath. If these walls did not become cold, no moisture would condense on them, and no dampness would accumulate in the hives. On a cold winter night, frost sometimes accumulates on our windows until it may be $\frac{1}{2}$ inch in thickness. The amount of ice depends on the difference in the temperatures of the air on the two sides of the glass. If the air outside should be below zero, while that inside is 70 or 80, and at the same time is fully charged with moisture, from the kitchen perhaps, as is the case frequently on washing days, or even from the breath of many persons, the accumulation of ice on the glass will be very rapid. If the room is kept warmed up the ice will melt, and the water will run down, until the floor becomes quite wet. While running a small engine one winter, in a room having large glass windows, the water accumulated so

rapidly on the glass that we had to attach a tin trough to the window sill, to catch it, and in a little time we caught a pailful from the end of the spout. The cause is this; warm air takes up and holds in solution a large quantity of water. This water is of course invisible, and we have scarcely any means of detecting it so long as the temperature of the air is unchanged by coming in contact with colder substances, or currents of air of a lower temperature. If the walls of the room are kept warm, there will be no perceptible dampness. Let them be chilled, as in the case of the window pane, however, and we shall have the warm air dropping its water the very minute it comes in contact with the cold surface, in exactly the same way that dew is deposited, on a hot summer day, on the outside of a pitcher containing cold water. The process with the window goes on, because currents of air are started both on the outside and inside of the glass, by the heat that passes through the glass. To make this plain, let A, in the cut below, represent the pane of glass.

The arrows represent the course of the currents of air. The greater the difference in temperature between the outside and inside, the more active are these currents, and the greater is the disposition of dew or ice, on the surface of the glass on the inside.



HOW BEE HIVES BECOME DAMP.

In the warm room you will see that the air is chilled as it strikes the window, and then falls because it is heavier; this gives place to more warm air, and keeps up the circulation. On the outside, the cold air next the window becomes warmed, and rises on account of being lighter, and this keeps up a similar action on the outside, the direction of the currents being reversed. Thus you see how the water from the air is condensed on the windows, and goes down into the pail. The air in the room would soon lose its moisture, were not more supplied from the breathing of living persons, or from the kettles on the stove, from damp air rising from the cellar, or from something of that kind. I need hardly state that the same operation goes on in the bee hive, especially, if the walls are thin, and the hive at all tight. If the top of the hive is a thin honey board, with cold air above and warm air below, ice will be sure to collect over the cluster, and when it melts will dampen the bees. The sides of the hive will be covered

with frost, and perhaps a heavy coat of ice, by the circulation of currents of air as I have explained. Now let us go back to the window, and place one of the chaff cushions I have advised for wintering, close against the window glass, on the outside. This will stop the outside circulation, and the light of glass will soon become warmed through to such an extent, that no ice, or dew either, will condense upon it. To make a further protection, suppose we put glass or boards on the outside of the cushion, or, in fact, make two walls, with chaff between them as in the chaff hive. A good colony of bees would warm up the thin walls next to them, sufficiently to prevent either frost or moisture from accumulating on them at all. Now, if the walls all around the bees are thus protected with chaff cushions, they can not well get frosty on the outside, and thus accumulated either moisture or dampness on the inside. As a proof of this, I have wintered a colony nicely, with a covering of enameled cloth over them, that was almost absolutely impervious to air. To be sure, a tick chaff cushion was over this enameled cloth, or it would have been wet very quickly with the condensed moisture; in fact several colonies became quite wet, during frosty nights in the fall, before the chaff cushions were put on. Now, if the bees are to keep these walls about them so warm that moisture cannot condense on them, the walls must be close to the cluster of bees, and certainly the material for them should be a non-conductor of heat, and they should be so thin, that they will readily warm through. Although it may not absolutely be necessary that the walls and covering should be of some porous material, which will absorb any chance moisture from the breath of the bees, it will perhaps be better that they should be so, and many experiments seem to indicate that straw or chaff is the best material for this purpose. For the reasons I have named the old fashioned straw hive, which has for ages been emblematical of the honey bee, seems to be very nearly what is wanted to protect them in the way they seem to demand. The straw next to them is warm and therefore proof against condensation; it is thin and hence easily warmed; is a non-conductor of heat; and while it may permit the air to pass through the porous walls slowly, it does not admit of a draft of cold air through the hive, as does a badly made wooden hive or one that has cracks or fissures.

STRAW HIVES.

Ever since the advantages of straw hives

for wintering have been fully demonstrated, attempts have been made to make hives of straw, to hold the moveable frames in common use. Such hives have answered the purpose very well, but they are convenient, untidy expensive to make, and not durable after they are made. As they cannot well be painted, they are soon destroyed by the weather; and if we make an outer shell to protect the straw, we have, virtually, a chaff hive, such as I have described. It is true, we might have straw next to the bees, but straw does not present a clean, smooth surface such as we wish to have next to have them built true, and I cannot discover by experiment, that the straw is any the less effective, with a thin board interposed between it and the bees. Straw mats for covering the frames have been in use for many years, and with good results, but I have found it a difficult matter to have them fit so closely over the cluster as do the chaff cushions, and they are not so neat and tidy. The mats will always have more or less loose straws pulling off. For the reasons I have given, I do not think a hive with the straw exposed either to the bees inside, or to the weather outside, will ever come in vogue extensively. After having tried many different plans of covering the frames for winter, I have adopted the mat made of slats, as described in HIVE MAKING; but this covering is intended only to keep the bees down, and to keep them from soiling and biting the cushions, and not to furnish protection from the weather, unless it should be during the warmest summer weather. Over this mat, the chaff cushion is to be laid.

Will bees work on comb foundation with flat bottomed cells as well as on the concave bottom?
Hamilton, O., Apr., 9, 1879. S. L. BEELER.

[Our bees *do not* work the flat bottomed foundation as fast, nor is the finished comb made concave at the base like the natural comb. It cannot, in my opinion, be as good economy for the bees, although it will, nevertheless, answer very well, and may be used eventually, on account of its cheapness.]

HIVE MAKING WITH THE BARNES FOOT-POWER SAW.

I think I have made an improvement on your way of cutting the bevels on the simplicity hives. Fasten your beveling table to the sliding side of the saw table, put on the cross cut bar, and when properly adjusted, you are ready for business. With the table as you described, I was troubled by the lumber's crowding down against the saw, and pinching it.

Charles City, Iowa, Mar., '79.

M. L. HUDSON.

My bees have not behaved well. I enclose 10 cts., for which please send me the March number of "GLEANINGS"; perhaps it will tell me what occasioned the trouble.

Parkman, April 7, 1879.

L. M. BURT.

[I am afraid yours are not the only bees that have not behaved well, friend B., and I am also afraid that neither the March No., nor any other, will be able to tell you all about the "trouble".]

DEPOSITORY OF

Blasted Hopes.

Or Letters from Those Who Have Made
Bee Culture a Failure.

THE Bible says that in the last days there shall be weeping and wailing and gnashing of teeth; I tell you that there is a wailing cry ascending from our part of the country, this spring, over the great loss of bees during the past winter and spring. I think, without over estimating it in the least, that fully 9 colonies out of 10 are gone over the dam. This was getting to be a great bee country. I know of quite a number of men that had from 75 to 175 colonies in the fall, but the winter has whipped them nearly all out of existence. I started in the winter with 43 skips, and, if I get through with 5 I will do better than I think I will. One of my neighbors had 175 swarms in the fall, and he has only 6 colonies left now. I have watched and studied pretty closely for the cause of their dying, and I think that it is to be attributed to their long confinement during the winter. During more than 3 months, steady stretch, they could not fly, on account of cold weather. We have not had a very severely cold winter, but cold weather was so very steady that there were no warm days when the bees could take a flight; therefore they had to empty themselves in the hive, and it gave them a disease that is called in these parts, the bee cholera. Is there any help for this complaint? and what can we do for the colonies afflicted with it now? A great many are discouraged, and say that they will never try to raise bees again; but I am not discouraged yet, although it has been a very great loss to me. I had made quite extensive preparations to supply this country with hives and bee supplies in general. I am going to try again, thinking that if I had understood their natures better, I could have had better success. I have made bee culture a study and a specialty for a few years past, but the present state of affairs has rather put a check to my operations. Never daunted, however, I shall look ahead with the firm expectation that success will crown my efforts at last.

Caro, Mich., March 30, 1879. J. S. KITCHEN.

Now for my report on the past winter. I would much rather leave it blank, for I fear you will chuck me in Blasted Hopes, at once; but as I am always glad to hear the reports of others whether they be good or bad, I suppose it is but fair that I should give in mine also. Well, last August I could count 68 hives from which bees were flying, and all but 4 or 6 I considered very good. To-night, April 7th, I can count but 23 and not more than 1/2 of them are even fair. This is what has become of them: a few were robbed out last fall, during the 4 months when I was in Pennsylvania; some froze during the cold winter; a large number had the dysentery and died badly; a few starved; and lately they have been dwindling, and swarming out day after day, and, in the latter case, have almost invariably left brood and plenty of honey. To-day, 3 colonies have swarmed out but I have hived them all together in one hive. Swarming out is very general through this section. However, I am not going to let them be at me yet; for, with all the combs I shall have, I will make them "git up and git" when they do settle down to business next summer, and if I do not have so many swarms to hive, I will have the more time to attend to customers who may want hives and sections.

Port Washington, O., April 7, 1879.

A. A. FRADENBURG.

I bought one hive of bees, 4 years ago this spring. In 3 years (that was last year), I had 21 swarms, all rich in stores and mostly strong in bees. They are all dead but one, and that is very weak. Four-fifths of all the bees in this neighborhood are dead. Those who have fared best are those who took the least care of their bees, apparently. Some who housed, and others who put their bees in cellars, lost all their stocks. Some who left them out in all the weather without any care saved nearly all. I packed mine nicely with straw, with the result above named.

D. D. LIGHTNEG.

Hobart, Ind., Apr. 9, 1879.

It is true, that many colonies have been reported dead, when every thing seemed in proper shape so far as we know, but by far the greater number of reports indicate plainly a decided advantage in proper protection. When we come to get at the full facts, we find as a general thing, that those who have lost so badly did not have them well taken care of. Now, friend L., was your straw packing close up to the bees, and were they closed down into a small compass for winter, as I have so strongly urged? I, too, lost powerful colonies, but they were in large hives, with 4 times as much honey, as they could possibly need.

We have a fearful loss of bees here, and more among the Italians than any thing else; mine are about all gone.

JOHN MERRIT.

Pittston, Pa., April 9, 1879.

It has been a very hard winter for bees in this section. I know of several that have lost all they had, and I have lost 29 stands myself, but I don't want you to say anything about it, for I am perfectly ashamed of it, and I don't mean it shall ever happen again while my name is

ED. TUCKER.

Marengo, Iowa, April 9th, 1878.

FEEDING BEES MASHED UP HONEY AND DIRT, FROM BEE TREES.

I have lost all except 2 colonies out of 12, including my tested and imported queens. I am going to advance an idea as to why I lost them. Two years ago last fall I had two colonies, one weak and one strong. I cut a bee tree, and fed the weaker swarm, *in the hive*, all the crushed products of the tree, consisting of bark, worm dust, &c., and had them packed just like the other hive with thoroughly dry saw dust. I fed the strong one nothing. They came through all right, but the one fed was attacked with dysentery and died in a few months, leaving me but one. This I increased to 5 the following summer, and not having time to cut any of my trees I fed the weaker ones, and packed all nicely in chaff and cut straw. All came through nicely. Last summer I increased the 5 to 12 giving them 6 Italian queens, and packed them just as they were packed the winter before. Late in the season, I cut 2 bee trees, and to economize (?), I fed all the "hatched" honey, bark, dust, dirt, and all, to my bees at large, placing it in front of hives, on boards, &c. I was careful as to ventilation, &c. All had well stored hives, but in a few months I saw the hives besmeared just the same as my first one, and 4 were dead in a few days. I moved them into the barn, packing them up there, but still they died. When I saw your answer to some one who had done similarly, I removed the remaining four outside, and protected them by packing. In a few weeks 2 of those died, leaving but 2. It was a noticeable fact that all black bees died first, with one exception. I now have one of each, and am pretty well convinced that there was something unhealthy about that dirty tree-honey. Could there be such a thing as the worm dust's containing acid enough to induce or start the dysentery? Nearly all the hives contain enough honey yet, to winter a colony. I am not discouraged, by the way, and am fitting up a shop where I expect to make every thing in the way of hives, &c.

D. M. SHARNACK.

Petroleum, W. Va., Apr. 4, '79.

I can hardly think it was the dirt or dust that gave the bees the dysentery, but rather the old honey. I have many times known old, thick honey to produce just the result you describe, especially if it was dark and strong. It is on this account, that I have so many times urged that syrup made from pure white sugar is safer than honey to feed to bees for winter. Almost anything will answer to feed them with so long as they can fly every day, but beware of using food any way objectionable, after the approach of winter. Did you not feed them so late that they did not get it perfectly sealed over?

Heads of Grain, From Different Fields.

CHANGING LOCATION OF HIVES.

ON the first of this month, I carried my bees (16 swarms) out for a fly, putting them all close together, and left them out one week, when I returned them to the cellar. Yesterday, I carried them out again and put them on their summer stands, about 6 rods from where they were placed on the first of March. In the course of the day, they commenced to return to the place they occupied on the first of March. I then took a hive filled with plenty of comb and honey (one in which the bees had died in the winter), and placed it where the bees seemed to be thickest, and now have a good swarm of bees in it, but of course they have no queen. Now, what shall I do? Can I get a queen now? and if so, at what price? C. O. SHANNON.
Edgerton, Rock Co., Wis., Mar. 23, 1879.

Your experiment proves that it injures stocks, to change the location of their hives, even though they have been some days in the cellar, as were yours; and I fear you have injured yours, by depriving them of their flying bees when they need them most, even though you have made a new swarm. The bees in your swarm, being all, or nearly all, old, will soon die off, even if you had a queen to give them, and so I think it would be best to distribute them around to weak colonies.

QUEENS THAT TURN OUT TO BE DRONE LAYERS.

In Italianizing my bees last summer, I introduced with some difficulty, a queen to one swarm, on the first of September. The bees did not like her, and tore off a part of her wings while in the cage on the frames, but finally accepted her, till they could suit themselves better, as it seemed, for they tried to supersede her all the fall, and kept building queen cells, and went into winter quarters with drones in the hive, that they had not killed. The queen did very well last fall; her bees were well marked, most of them being 3 banded; but, this spring, they have raised *drones, drones, drones*, and nothing else. Eggs laid in worker cells came out drones. I have not been able to find any worker brood capped over this spring; it would all be bulged out into drone cells, and some of the bees, Mr. Elkins said, looked as though they were half drones and half workers. I destroyed her, and put some eggs from an imported queen in the hive, the 29th of April, and set them to raising queen cells. Now, what was the trouble? Had the queen failed? She was young, and I introduced her as soon she commenced laying. Or were the bees the ones that did the mischief? I don't think it was the bees, but it is a mystery to me. V. PAGE.

Kennedy, N. Y., May 7, 1878.

I think the trouble was all in the queen, and that the bees, by some means unknown to us, had a premonition that she would eventually fail, and therefore were bent on replacing her. Such cases are not uncommon. Where the bees persistently build queen cells, in the manner you mention, I believe the queen usually fails pretty soon after.

ADULTERATION OF HONEY, AND MAPLE SYRUPS.

In Dec. No. of GLEANINGS, I notice some remarks in regard to the adulteration of honey. It has almost ruined the sale of extracted honey in the western country. The most of the extracted honey in the market, previous to the introduction of California honey, was put up by Perrine of Chicago, and it is so notoriously adulterated that it is hard to convince an old mind that a pure article of extracted honey exists. Perrine also puts up an article which he calls pure maple syrup that has but a faint flavor of the genuine article.

FILING CIRCULAR SAWS.

I wish to say to those having Barnes' buzz saws that I tried every form of filing saws, but none of them would accomplish the amount of work that I thought they should, until I cut out every other tooth, and give them a large throat. Now I can saw more than the warrant calls for with very much less fatigue; the saw should have a pretty good set, about 1-24 of an inch, and the outer corner of the tooth should always be kept full. I use a small rat tail file, to keep the throat round, so the saw dust will not wedge in as it will sometimes, if the lumber is a little pitchy.

Canon City, Col., Jan. 13, 1876. CHAS. E. McRAY.

Making a "throat" for the saw dust is a very important matter I know, but is it really necessary to take out every other tooth, friend M.? Does not the saw do rough work from being made so much coarser?



SETTING THE CROSS CUT BAR TO A CIRCULAR SAW.

In A. B. C. No. 2, you give a plan for setting a cross cut bar. I have a plan that I think much more simple and easy. I take a scrap of board that has one straight edge or end, place this against the bar, cut a piece from all four sides, and if the last piece is exactly parallel, the bar is accurate. If not it will show pieces as in accompanying cuts.

Middleport, O., Mar. 17, 1877. A. E. GARDNER.

Many thanks for your very ingenious plan, friend G. If I get the idea correctly, when the bar is exactly at right angles, the strip that comes off from the last side will have parallel sides, and your block will be exactly square; but, if there be any deviation from an exact right angle, each successive cut magnifies it, until we get clear around, and at the last cut, we have the sum of all the variations.

TOO MUCH HONEY, TINKERING WITH STOCKS LATE IN THE FALL, ETC.

You have met with quite a loss in bees, but according to friend Fowler, page 144, you should have saved all except the one in the American hive, and so much honey, we have been told, would kill the bees in cold winters in any hive.

I would like to change my bees to the Simplicity, just for the convenience of handling (not because I think I could winter any better, but I can't afford it. I don't think I ever had a good colony of bees freeze yet; I certainly have not in the last 3 years. I use a frame 11 in. deep, 13 in. long, with closed top bar, 11 frames to the hive. The hive is made of 3/4 pine lumber. I never used chaff quilts, or any packing whatever. I give the bees plenty of time in the fall to fix up, then let them alone.

I went into winter quarters last fall with 43 colonies all told; I left them on summer stands with no protection whatever, with a full north west exposure and I have not lost a colony yet, and they are all strong colonies too. Others have lost bees, but I think it caused by late tinkering. It was so cold here last winter that nearly all the peach trees in the country are killed. I lost 80 peach trees—all I had—several pear and cherry trees, and other shrubbery.

I like your last improvement in your corners for Simplicity hives. Do get us up that cheap fidu machine. I use 5 cts. worth of wire cloth, and 5 cts. worth of muslin for bee veil.

A. S. DAYISON.
Aullville, Lafayette Co., Mo., April 7, 1879.

I have since lost two more colonies in the very large American hives that I purchased. One of them was such a very populous colony, that I had paid an extra price for it. It was transferred yesterday, and all I have for

my money is 30 or 40 lbs. of sealed honey in American frames, and a lot of kindling wood.

They died with dysentery. Had they been put on a few combs, and packed all around with chaff, I think it would have saved them; but I had an idea, that very strong colonies would do well any way, even if they were in large open hives. It may be that it was the stores they had, and I will write to-day, and see if the man of whom they were purchased lost in a similar way. I know fussing with bees after cold weather often seems to have the effect of starting dysentery, but as these were shipped me during nice pleasant weather, I can hardly think that the cause, in this case. The cheap film machine is in progress.

"WHAT KILLED 'EM?"

I see from April GLEANINGS that you have lost heavily in bees. I, too, have lost heavily, 30 out of 150, more than I have lost in the previous 16 years of my bee-keeping. I feel awfully guilty. I try to ease my conscience by saying to myself, "It's dysentery and spring dwindling," but 'tis no such thing; it's pure carelessness. I took a trip off south, and the big snow came and covered the little pets all up (which was all right), and then my kind friends took it off the hives, and opened up the entrances to give them air, and they got it; and now, partly in consequence, 30 are dead. Had I put them in the cellar as I have done in former years, I have not a doubt but 25 out of the 30 would now be alive. The old double cased hive that I put bees into in 1868, again wintered well. I used to write you about this hive; your reply was that doubled cases had been tried and were a failure, and now you advocate chaff hives. T. G. MCGAW.

Monmouth, Ills., April 10, '79.

FOOT AND HAND POWER SAWS.

Having had some experience in making Simplicity hives by hand, I concluded that I could make them not only faster but better, with some kind of a foot-power saw; so I went to work and made one partly after the plan of Smith's and partly from Hutchinson's (described in Nov. and Dec. GLEANINGS), and the rest of the ideas were my own and the carpenter's that helped me build the machine. The treadle shaft has a crank on each end, and the treadle was arranged the same as the Hutchinson saw, but, as the machine was new and geared rather fast (about 48 revolutions of the saw to one of the treadle), I concluded to apply the power in some other manner, so that one could run the saw while another did the feeding. I arranged two levers to come up behind with a cross piece framed on about breast high, then connected the pitmen two feet from the bottom, to run forward to the cranks on the treadle shaft. By taking hold of the cross piece and working it back and forth, it applies the power both ways on the cranks, and is much nicer exercise than it is to tread; it answers the place of dumb-bells admirably. If all the machines run as hard as mine, and a man would pump it 3 or 4 hours each day, for a few months, it would develop his muscular powers amazingly, and cure dyspepsia too.

I commenced wintering 10 colonies, but, alas! 8 are dead. There is, however, no great loss without some little gain; they have left me 8 sets of comb, and lots of honey, so I think I can build up to 10 again by using thrifty Italian queens, and giving them the proper care during the summer.

Pierpont, O., April 10, 1879.

JESSIE C. THOMPSON.

RED BUD, CATCHING STRAY SWARMS, ETC.

Will it be out of place to send in another bee report? My bees are having a grand time on the red bud now; 'all other bloom was killed by the frost last week. I wish you could see my R. Bud trees now, (I have several hundred of them) all covered with flowers and roaring with bees. I never saw bees work better in May, even the robbers stopped nosing about and went to work. If we can have a few more days of fair weather I will be able to send you a sample of Red Bud honey; I want to know what you think of it. I wrote you in my last that I had lost two colonies. A few days after that, three

colonies came to me to be taken care of, and I did it. One, I doubled in with a weak one of my own; the other two, I doubled up and gave some combs of honey; now they are doing their best to repay me, so you see I haven't lost much after all.

Jonesboro, Ills., April 9th, '79. W. J. WILLARD.

ITALIANS AND COMMON BEES.

I commenced keeping bees one year ago this spring. I bought 2 swarms of black bees, sent to friend Sayles of Hartford, Wis., for 2, dollar queens, and introduced them all right. One was not as good as he wished, so he sent me another; was not that liberal? All proved good. I made a nucleus with the extra queen and all are doing well. From my 2 old hives, I took 100 lbs. of nice honey.

Give me Italian bees rather than blacks. Last season was my first year, but I find that side by side, Italians will work earlier and later, and make more honey, and of a nicer quality, especially in the fall; while my black bees were bringing in black honey, the Italians were making a good quality of honey but a shade darker than white clover honey. I introduced my queens just after swarming; is not that a good time to introduce Italian queens?

Mindoro, Wis., Mar. 11, '78.

O. A. Sisson.

It is a very good time to introduce queens after swarming, only that you have to go through with the process with your new swarms also.

AMOUNT OF HONEY CONSUMED IN WINTERING, GRAPE SUGAR, ETC.

Out of the 80 stocks of bees reported last Nov. as packed in chaff on their summer stands, but 2 were lost in winter. Those contracted to 4 frames are doing equally well with those having more room. The average amount of honey consumed by them is a little less than 14 lbs. Those supplied with grape sugar in frames lived from September to the first freezing weather in December, when they died. I have experimented with grape sugar 2 years, and now I believe it to be entirely valueless to apiarists except, perhaps, for stimulative feeding in spring, and even for that it is no cheaper than other sugars, owing to the large quantity of water it contains. On the whole, you may record my vote against its use. J. B. HAINES.

Bedford, Ohio, April 12, '79.

SWARMING OUT IN SPRING AND REMEDY.

I see that W. P. Turner and L. B. Wolf have been troubled with their bees swarming out. In the spring of '74, my bees swarmed out in the same way. They had plenty of honey and brood, and I would cage the queen, and they would swarm out and leave her. I would give them new combs with honey and brood, and a new clean hive, and they would swarm all the same. As for the cause, I cannot account for it, unless they were discouraged and left for better quarters. The only way I could stop them was to go to some populous stock and take a comb that had some brood in it, with all the bees that were clustered on the comb, being careful not to get the queen with them, and unite them with the stock that swarmed out, and then confine them for 48 hours, being careful not to smother them. After that I never had any more trouble with their swarming out.

I went into winter quarters with 37 stocks of bees and now have 36 stocks in good condition. I have wintered 2 stocks in chaff hives for two winters, with good success. More than 3/4 of the bees around here are dead. G. W. SIGGINS.

East Hickory, Penn., April 14, '79.

The above agrees exactly with my experience, and the remedy given is the only one I have ever found effectual.

FLORIDA AND HOW TO WINTER BEES THERE.

An A B C scholar in Florida desires to make his report.

Last October, I purchased, in Jacksonville, Fla., 6 swarms of Italians in the "Florida" hive, 8 frames 18x11 in. The frames were then partly filled with comb, but there was not a pound of honey in the 6 hives. During the winter, whenever the weather was favorable, the bees would be out gathering stores. On examining my hives I now find that the frames are nearly all filled with brood and hon-

ey, and I will soon be able to divide or swarm them artificially, as I shall try more for bees than honey this season.

Now, I would like to ask you if there is any state north where, if your bees had no honey in October, they yet could go through the winter successfully, without feeding!

Hogarth's Landing, Fla., Apr. 12, 1879.

A. S. ARESON.

The smoker and fdn. arrived all safe, and give perfect satisfaction. Accept thanks.

It has been a hard winter on bees, and about $\frac{1}{2}$ of the bees in old fashioned hives have died; but those put up with cloth cushions on top have come out well. It pays to take care of bees as well as cattle.

Watseka, Ill., Mar. 24, 1879.

W. H. SHEDD.

My experience teaches me that the queen is more apt to lay in the sections in drone comb, than in worker comb.

R. B. RIAN.

York, N. Y., Nov. 22, 1878.

HOW THEY SWARM (AND GO OFF) IN MISS.

Six months ago, I could not have said with certainty that I had ever seen a bee-hive, but now I think I could "run" an apiary myself, under the directions to be found in your A B C. In Jan. last, we moved to a new farm, where bees were kept, and were induced to buy 5 colonies in old box hives. One swarm died, and 14 new swarms went to the woods in March and April, some without stopping to cluster, others after being hived in new box hives. However I have increased to 14 and expect to go into bee keeping in earnest next year, if I can save enough to buy hives, extractor, etc.

How many hives can one person take care of, on an average?

Como, Miss.,

P. J. McKENNA.

If you allowed 14 to go to the woods, and then had 14 left from only 7 in the first place, you must certainly have a wonderful bee country, friend M. I do not know how many colonies one man can care for until he has made a trial of it to see. An experienced hand should have about 100 on an average, to keep him fully employed, and I think a man ought, if he devotes his whole time to the business, to be able to do all the work for that number.

KEEPING THE GROUND CLEAN IN THE APIARY, LUMBER FOR HIVES, AND HIVING SWARMS ON SUNDAY.

I got the "bee notion" last summer, subscribed for GLEANINGS, bought parts I and II of A B C, and have been studying them ever since, with pleasure. I purchased 37 colonies of bees this spring, in the American hive, and as I am one of the A B C class, of course, I must transfer. Now a few questions.

Do you keep the sod cut away from between your hives? If so, is 'nt the ground "sticky" after rains? In making hives, do you use lumber that is entirely free from knots? Is it wrong to hive bees on the Sabbath day? If not, why is it wrong to haul sugar water on the same day? As there is a great deal of sugar water hauled here on the Sabbath, a little explanation why bees can be hived by Christians, while the man who hauls sugar water is condemned, would be of interest as well as profit.

Mingo, Ohio.

BURLEIGH R. PARSON.

In our old apiary we keep the sod all off, and hoe down the weeds, and then sweep the ground clean with a broom. As the ground is thoroughly underdrained, it is sticky but a very few hours after a rain, and I very much prefer a clean space in front and around each hive. In our new apiary I have decided to let the sod remain, on account of the labor it will require to keep so large a plat entirely clear of vegetation. For hives, we use lumber that has no loose knots; knots do no harm, if they are sound and will not get loose by the action of the sun. Should I tell you it was wrong to hive bees on the Sabbath day, do you think you would be perfectly satisfied to follow

my opinion on the matter? If I should say it was right to haul sugar-water on Sunday, would all church members agree with me? On these points where honest opinion may differ so much, shall we not let every one who is trying to do right, decide for himself? If you wish to do what is right, and your conscience lets you feel satisfied with what you have done, I have no fear but that God will be satisfied. I do not think so much of what we are doing, as of the spirit we have while doing it. I should feel perfectly happy and contented while hiving a swarm of bees on Sunday, but I should not feel happy if I sat on the fence afterward and talked bees with a neighbor for a half-hour. There are two extremes in this matter, and if you read your Bible carefully, I think you cannot go very far astray. Jesus reproved for doing business on the Sabbath, and he also reproved those who found fault with him for healing the sick on the Sabbath.

COVERS TO HIVES.

In Feb. No. you say that a hive cover made of narrow lumber matched together will leak sooner or later. Last season, I made some in that way, and run a $\frac{3}{16}$ bead on each side of the joint, and put the joint together with paint, and they have not leaked yet. A small V shaped groove, cut with a saw or a cutting tool made on purpose, would answer nicely, thus:



The V grooves prevent the water from running into the joint.

A. FRADENBURG.

Port Washington, O., Mar. 31, 1879.

The idea is quite an old one, and with narrow strips, say 4 or 5 inches wide, it does very well while well painted. The roofs that have troubled me were made of 2 boards only, with such a joint in the middle. If the hives are set sloping a little, they leak less, but, for many reasons, I prefer a hive set exactly level; and a flat roof, made of strips in the way you mention. I think would, in time, be sure to leak, on a level hive.

UNITING NEW SWARMS.

We had some visitors when the swarming fever was contagious, and a second swarm issued. I told one of them (an old bee-keeper) that I would unite the said swarm to one previously issued.

"Oh, my! you must not do that; you will spoil both of them," said he.

"Well," said I, "it must be returned or united; I guess I'll take the latter move," and so I did.

This proceeding took place in the forenoon, and before they left us the bees were working with their whole force. "Well, I never before saw such a thing done in my whole life," said he. "I always have second swarms separately, and if any lack stores, I put brimstone under their noses, and that finishes them."

I told him that was too cruel a way for our little pets. Don't you think so, Mr. Root?

PRESTON J. KLINE.

Hoopersburg, Pa., April, 1879.

Swarms that have issued on the same day can always be united without trouble, so far as my experience goes, and they will almost always unite peaceably, even if one of them is a few days or a week old. In the latter case, it would be well to watch them a little, and use the smoke if necessary. A new swarm, laden with honey, as a general thing, will be well received in any colony, but swarms that desert, or are driven out by starvation, will almost always be stung, when they attempt to enter another hive.

DRONES; COLOR AND MARKINGS OF.

Are the drones of an imported queen always of uniform color? If they are, I am inclined to think that the fertilization of the queen does effect the drone progeny. I raised queens from the larvae of an imported queen. The queens were mated with black drones and their progeny of drones vary as much in color as their worker bees. About the best proof we have of anything is that which we see with our own eyes. Instead of using a lamp nursery, I cut out queen cells when sealed, place them in wire cages, same side up as when in the comb, then place them on top of the frames, under the quilt, among the bees of any good colony. I examine often, and introduce as soon as hatched. F. C. WHITE.

Euclid, Ohio, May 13, 1878.

I believe the general decision is that no dependence can be placed on the color of the drones from any queen, they vary so much. Are you always sure of a thing, friend W., when you do see it with your eyes? Your wire cage for hatching queens is quite an old idea, but does not seem to be much used.

FDN. IN EVERY OTHER FRAME, FDN. FOR NEW SWARMS, AND SPACE REQUIRED FOR COMBS.

I have used fdn. in honey boxes and it works like a charm. Now about the brood chamber; if I put the fdn. in every other frame will they build the cards between the fdn. in good shape? or have I got to put it in every frame? I saw in some book that it would not do to have bees into a hive filled with fdn. and nothing more. Do you think that the fdn. will sag in my 12 by 13 $\frac{3}{4}$ racks that you make?

My hive is 12 in. wide by 13 in. long. I put in 8 frames to the 12 in.; do you think this enough? Springfield, N. Y., Dec. 27, 1878. S. E. GLAZAR.

If you put the fdn. in every other frame, they will build in the empty ones all right, but you will find the natural combs will get along much the slower. I have hived a good many swarms on fdn., but have had no bad results. There would be a greater liability to sag with your deeper frames. Eight frames will do very well in a 12 inch hive, but, if they are all built on fdn., so as to be perfectly straight, you could get along very well with 9.

ARTIFICIAL HEAT AS A REMEDY FOR DWINDLING.

Bees have wintered very poorly in this part of the state. Very few of our small bee keepers will get any through alive, and all have lost some. I had 40 stands last fall, and have lost 10. They had the spring dwindling. About $\frac{3}{4}$ of the rest were very weak before I noticed them; they seemed to dwindle so quick. As soon as I noticed them I took them into a dark room, and am keeping a fire day and night. They have been in about 2 weeks and seem to be doing well. HART BARBER.

Adrian, Mich., March 28, 1879.

Many attempts have been made to stop the dwindling, by the use of artificial heat, but I do not know as we have had a report of a successful experiment without the intervention of weather that would allow the bees to fly. Will you tell us how your experiment succeeded, friend B.?

SOAP FROM PROPOLIS.

Mr. M. W. Chapman would confer a favor on your readers by giving us his mode of making soap with either propolis or rosin. The fact is, in our "wooden" country, we have the materials in abundance for making soap, but don't know how to combine them so as to make a soap that will not endanger the skin when used on the hands; but we make a soap said to be just jolly for house work. Whitleyville, Jackson Co., Tenn. H. W. REHORN.

I hope we can make the soap business work, friend R., for it will make another product from the apiary. Instead of being obliged to scrape the propolis off from the

old hives and frames, we can just boil the wood in our ley, and throw it out after the gum has all dissolved from it. Unless, however, as with honey vinegar, we get something very superior, we can hardly hope to make much money by it, for common rosin is sold so cheaply, that propolis could hardly be gathered up at the price of it. Perhaps the propolis is superior to rosin for this purpose; we hope so.

A FEEDER FOR FEEDING DRY SUGAR.

I see by your list that you wish a feeder that will feed sugar just as taken from the barrel. I have used such a one for some time, and think it far ahead of anything I ever saw. Bore 2 holes in the bottom of a Simplicity feeder, and draw rags through them. Let the rags be not very tight, but just close enough to allow the water to ooze through them slowly. Nail this close underneath the top-bar of a frame, and bore a hole in the top-bar to fill it through. Then, on each side of the frame, nail thin boards, wide enough to reach within one inch of the water trough. Fill the sugar box with sugar and the water trough with water, hang in the hive and I will warrant you it will be all gone before you know it. If you prefer, you can place the water trough down from top-bar far enough to let the bees get to the water, and not bore holes in the bottom of the feeder; but, according to my experience, they will not use it as fast in that way; for, if the bees do not take the water as fast as it oozes through, it will drop on the sugar and they will then soon lick it up. Perhaps the water trough would be better if made of tin, but it works well now.

Plainfield, Mich., April 8, '79.

F. L. WRIGHT.

I do not know where this idea of water and sugar is to end, but from the number of communications on the subject, I feel that something superior to any feeder now in use is to be the outcome of it. The demands of the case seem to be something to furnish sugar in a considerable quantity, just as it comes from the stores, in such a way that it will not be wasted. If water is to drip on it, it is to be tight enough so it will not leak, and we are to guard against any sort of daubing. The utensil to hold the water should be wood or glass; anything made of metal will rust in time, and prove unsightly, even if it is not unhealthy for the bees. It ought to be so made as to be used without opening the hive, and then there will be no escape of the heat of the cluster. Placing it at the entrance, like the Simplicity feeder, seems to be the readiest plan. The water trough can be open as well as not, that it may be the more readily filled; and if a Simplicity feeder or something equivalent is used, robbers can be given to understand that they are quite welcome to all the pure water they wish. I would much prefer that all feeding should be done in the night time, when the weather is such that bees can fly, for I think it very bad policy for bees to be fussing with a feeder, when they might be at work out of doors, getting their own feed. Who will make the nicest feeder to feed dry sugar at the entrance? Many thanks, friend W., for your idea of letting the water drip on the sugar.

I am an A B C scholar, who started a year ago with one colony; in addition, I found one in the woods in May, and increased to 9, and secured over 200 lbs. surplus honey. I wintered in Langstroth hives, with clover chaff, *a la* Cook's Manual. All are now strong except the first swarm from the old hive which is queenless, and very weak. The bees carried the first natural pollen yesterday. I am so well pleased with chaff, that I have purchased a

saw, and am going to make the "Simon pure" chaff hive. Many bees have been lost in this vicinity. One "old bee man" now has 4 stocks left from over 50. GEO. W. JONES.

West Bend, Wis., Apr. 8, 1879.

I began the summer of '78 with 11 good and 6 light swarms, increased to 25, sold 2 and took 100 lbs. comb and 200 lbs. of extracted honey. I have wintered successfully again in my long box, so the bees are all in good shape, packed with chaff. They commenced work on flowers on the 24th of Mar. Do you think we can afford to lose the good reputation of our honey, just for the sake of using a little cheap, grape sugar? I do not think that any of it gets into the honey, but neither you nor any one else can make the public believe it, as long as it is used to feed bees with.

Bloomington, Mich., Apr. 14, '79.

JOHN CROWFOOT.

I shall be sorry, friend C., to be obliged to gauge my work by what people may say, even while I am conscious of having done no wrong, but if I am obliged to succumb I will try to do it with a good grace. The same reason will apply to cane sugar; cannot we use that for feeding either, even should it prove safer than honey?

DIFFERENCE IN COLOR OF GRAPE SUGAR.

Somebody remarked that the grape sugar sent out of late by the Davenport Co. was whiter than formerly. We wrote in regard to it, and received the following:

As to the difference in color, we would say that we have been, and are, continually trying to improve, and want to furnish an article that cannot be surpassed. All the purifying is done now by animal charcoal, no bleacher or chemical of any description entering the process for producing appearance. The animal charcoal removes the color and all impurities, and cannot leave any thing in the sugar that can make it unhealthy. It is in this filtration that we have improved, and hence the changed appearance.

LOUIS P. BEST, Supt.

Davenport, Iowa, Feb. 1879.

MAKING COLONIES WEAK NOT A PREVENTION OF DRONE REARING, IN THE SOUTH.

As far as this section is concerned, you are incorrect when, in last GLEANINGS, you say that one way to prevent raising drones is to weaken the stocks by dividing. I had drones hatched by the 12th of Feb., in weak 2 and 3 frame nuclei, by queens hatched and fertilized last Oct. and Nov.

MAKING FDN. THICKER TO PREVENT SAGGING.

I had from 800 to 1000 combs, built last summer, to melt over on account of sagging and drone raising in them. I shall make the base thicker hereafter, as the thick fdn. does not sag so much.

TINNED WIRE FOR FDN. NOT A HINDRANCE TO BROOD REARING.

You suggest that a thick base of wax is necessary for wired fdn., but I fail to see the object, as my bees clean the wax off from the wire on both sides, and queens lay eggs touching the wire at the side, and I find some eggs laid on the wire.

From what I read, I think Betsinger did not mean to say, as you give the impression in GLEANINGS, that his copper rolls had anything to do with the bees not accepting the wired fdn., but it was the wire that affected the brood after the fdn. was built out.

With me, so far, tinned wire is a success. Bees hatch as well in cells over the wire as in any of my combs, and the cells are used again as well as at first. Bees hatch all right even when the egg is laid on the exposed wire. If the wired combs can be kept in this season without affecting the wire, I shall consider the test complete, and shall use wire in the brood chamber for all my combs. Eight wires to the frame is all I want, which takes about 7 ft. of wire for each frame.

Shreveport, La., Mar. 17, '79.

C. R. CARLIN.

MITCHELL.

I had a call from N. C. Mitchell, and learned from him, and from some others since, that he has sold about here some 3 or 4 farm, and one county, right out for his hive. After introducing himself, he took out

his patent and read over with a good deal of confidence his right patent, and the protection which the law gives him; but it seems that he found me a little better posted than he expected, as he did not stop long to talk bee interests with me, but got in a dreadful hurry, gathered up his papers and models, and "lit out."

I told him that A. I. Root, of Medina, was infringing up on his right, and asked why he did not go for him. He said a judgment against him would be worth nothing. I told him he edits a paper, keeps lots of bees, employs a great many hands, carries on a large business &c., and asked in whose name he does business if he is not responsible. He had no more to say. I stopped him at the door to engage some Italian queens pure from Kelly's Island. He replied that he had found that raising queens did not pay, and had quit that business; so you see I got no more satisfaction from the interview than he did. Orangeville, Ohio, April 14, '79. N. CASE.

WIRES FOR THE PREVENTION OF SAGGING IN FDN.

I found the past summer, that one wire stuck into the top bar with a squareawl, and rolled into the fdn. with a roller the thickness of a cent, would stop sagging, and the bees worked over it well. They raised brood and stored honey seemingly as well as though it was not there. The wire was very fine, such as used for hair flowers. I think 2 wires would be better, thus:



I have tried them across, but they don't do as well; the bees throw or work it out. JAMES MCCLAY.

Madison, Wis., Feb. 3, 1879.

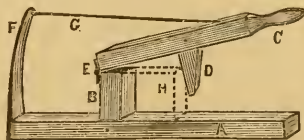
Your idea is a good one, friend M., and since having my attention called to the matter, it has occurred to me that narrow strips of tin foil will answer the same purpose; they can be easily rolled in the fdn., but I fear it will injure the mills, unless it is those that make the flat bottomed fdn. If we want combs more secure for shipping bees and for extracting, it will be better to have them extended clear across to the bottom bars, on the plan I have given.

AGE OF DRONES.

Two or three years since, I had a colony which was queenless in the fall. Drones were plenty in that hive during the winter, and even in Mar. As we seldom have brood of any kind here in Oct., the drones must have been almost, if not fully, six months old.

Last year, I took nearly 700 lbs. of honey, mostly extracted, from 11 stocks, and sold it at 12 1/2 cts.

Aetons, Ind., April 15, '79. W. C. HUTCHINSON.



MACHINE FOR PUTTING TOGETHER SECTIONS.

I enclose a drawing of a machine I had made for pressing sections together. I find I can work faster with it than by hammering the dovetails together, especially, if they are a little tight. B is a piece 2 1/2 in. square and exactly 4 1/2 in. long, mortised into A; D is the same length and mortised into C; C is hinged at E; F is a wooden spring; G, a strap of leather. Stick the section together just so they will hold, place as shown at H, press on the lever, C, and your box is done. Try one of these clumps and I think you will like it. They are very easily made and "no patent."

CYRUS MCQUEEN.

Buena Vista, Apr., 1879.

BEES ATTACKING THEIR QUEEN.

Looking at one of my hives of bees, on the 8th, I noticed that they were killing the queen, which had been introduced last summer. They were picking her out of a ball of bees. Three times I had to smoke them with tobacco smoke before I could get them

stopped. They had plenty of brood. I don't know the cause of their killing their queen unless it was the robbers, for they were flying around very thickly. Looking at them on the 15th, I found them all right, and would like to know the cause of their behavior.

Spencerville, Md., Apr. 18, '79.

H. V. BLACK.

I have had several cases of bees balling their own queen, but it was usually during a time of scarcity. Where the hives set very close together. These paracidal attacks, as they have been called, are made I think by strange bees that have got into the hive by accident, and finding a queen unknown to them, ball her much as they do when we attempt to introduce strange queens.

You did the proper thing, in smoking them; robbers *might* have been the cause, in your case.

THE "25¢" MACHINE FOR MAKING FDN. ALSO SOMETHING ABOUT PATENTS ON BEE IMPLEMENTS.

Enclosed find a piece of fdn. made from wooden dies, the dies having been made by a brass door key, filed the right size and shape, and then cut out in the middle so as to make a whole cell, at every clip of the hammer. I use boxwood for dies, stamped on the end, and soaked full of oil; then it can be soaped to prevent sticking. I can now make my own fdn.; thanks to Wm. L. King for the idea. The bottom of the cells is flat, but I guess the bees will work it.

W. REEGER.

Binghamton, N. Y., April 19, 1879.

The sample of fdn. sent has beautiful regular cells, and will work satisfactorily, without a doubt. As these improvements are handed in, I cannot help feeling, my friends, that the finger of God is plainly to be seen in all this, and that he has intended it as a rebuke to those who will persist in trying to patent these things which are so evidently the work of the people, and of no one individual. Fdn. with flat bottomed cells, made by home-made machinery like the above, seems destined to be as common as movable frames, and a patent is just about as ridiculous on the one as the other. You are wasting your money if you take out a patent for such things. God's hand is against you, and he is showing you your helplessness, through the voice and inventive genius of the multitudes of our people. See how futile these efforts, one after another, are proving to be. Give it up, my friends, I beseech you, and devote your energies to a better, a worthier, and a more profitable cause.

CORN HUSKS VERSUS CHAFF, SHINGLE COVER FOR CHAFF HIVES, AND MATS FOR COVERING THE FRAMES.

About half the bees in this vicinity are no more. I got one colony last year, but they are gone. I have bought two more this spring, and being a worker in wood, have made 3 chaff hives, all but the chaff. There being no suitable chaff to be had, at this time of the year, I have used corn husks; why will they not be as good as chaff? They will not decay so soon, I think. I had finished 2 bodies before concluding how to make covers. Just then it "popped" into my head that a lot of nice shingles had been over-head in the wood-house a year or more. So this is the way to make covers by hand:—

Mitre gables and sides together, cut and nail in ridge piece, nail on a double course of shingles on each side, planing the outside of upper ones, then get out an upper ridge piece, lay it inverted on the bench, turn down the cover upon it, and drive finishing nails *through* the inner, and *into* the outer piece, and "old Sol" can't "see the point" of a single nail, nor the heads of the upper course of shingle nails.

For mats, or covers, to lower story, I shall try this plan: make a frame large enough to lap on to the

edges all around, by mitering together stuff of suitable size, with a piece across the middle both ways; draw cloth "taut" over what will be the under side, tack it over the edges, and if necessary, to the cross pieces of the frame; now, nail a strip of tin—say $1\frac{1}{4}$ in. wide, around the edge, over the cloth, letting the lower edge extend 5-16 or $\frac{3}{8}$ below it, to rest on the ledges, thus holding the cloth above the frames, and affording the "blessed bees" a free passage over them. After this, should they still persist in gnawing their covering by reaching up over head to do it, they should be voted—gnaw—ty—bees. Division boards could be made to reach up to the cloth.

Memphis, Mo., Apr. 21, '79.

STEPHEN YOUNG.

I have often thought of corn husks, and have no doubt but that the soft portions would answer excellently. The labor of preparing them being the greatest objection that I know of.

Your shingle roof, with the upper tier of shingles planed and painted, would be a very good arrangement, and we may soon make use of the idea. Many thanks, friend Y. Your substitute for a mat has all the objections of the old style of honey board. If a space is left above the frames, even of $\frac{1}{4}$ inch only, the bees are sure to build bits of comb from the frames to the cloth above, and then you are liable to raise the frames when you lift the mat off, and whenever it is replaced, you are almost sure to crush bees with these bits of comb. It is true, you may get along by scraping these bits of comb from the tops of the frames and honey boards every time you open the hive, but this makes much work for both yourself and the bees. Something like our new mat, to lie close to the top bars of the frames, and which can be put down without killing any bees, I think will obtain the preference in the end. Cloth about bee hives needs replacing so soon that I am almost inclined to abandon it. The bees sooner or later, bite into every thing of the kind I have ever used.

PERSISTENT SWARMING OUT.

Mr. Root:—As the A B C children are in the habit of running to you for information, you will please bear with me, an Arkansaw hoosier, who is not expected to know anything, when I come with my query. Some 3 weeks ago, having bought 2 stands of bees in old gums, we carried an L. hive down and transferred them. They were left there about *one week* and were working beautifully when we brought them home on a wagon which gave them very rough usage. Next day my son interviewed them and found the frames badly jostled about. About 2 hours after making all things right, the bees in one of them concluded to *swarm*, and made off immediately.

My sons following, the bees settled in woods a half mile distant. They procured a hive and when trying to get them in, they made the *second move*. Away go the boys after, for another half mile run. This time the bees settled on a peach tree at one of my neighbor's and within 10 feet of *his gums*. The L. hive was brought up, and after some time they were caged, and left there to be brought home in a day or so. Mr. A. came over the next day, to tell us our bees had *swarmed again*. Being unwell and my boys absent, I told Mr. H. to do what he could with them and take bees for pay. He says he worked in trying to get them to accept of different hives until worn out; they insisted on hanging to the tree; and at this writing, 8 days since they left us, they are still banging on the tree. What is the matter? We gave them their brood when we transferred. Was the queen killed in transferring or on the rough ride home? Did going into the hive at noon to set things right cause them to take that uncontrollable absconding fever? This seems to be a trifling matter, but it has troubled me no little and I would be glad to hear from you.

R. A. BETHUNE, M. D.

Snyder, Ashley Co., Ark., April 19, '79.

It is a rather hard matter, friend B., to say why the bees so persistently preferred hanging on a tree, instead of going into the hives furnished them. Perhaps the bruised and mashed combs had so disgusted them that they preferred taking a new start somewhere else. Had your neighbor have given them a comb containing unsealed larvae from one of his hives, I think they would have stayed without trouble. I have known bees to hang out over night, but I never knew them to hang several days, unless they built combs and seemingly considered their airy situation a hive. I think you will find combs, by this time, and that if you transfer these to a hive, all will be well.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POST-PAID.

MEDINA, MAY 1, 1879.

And I will bring the blind by a way that they knew not; I will lead them in paths that they have not known: I will make darkness light before them, and crooked things straight. These things will I do unto them, and not forsake them.—Isaiah 42: 16.

I AM very glad to announce that a considerable reduction has been made in both freight and express charges by the R. R. and Express Co's.

I HAVE decided to make no more of the covered Simplicity feeders shown on page 32, March No., because it comes so near being a copy of Shuck's "Boss Feeder." I am not sure that I have done right in giving way under the circumstances, but I thought best to err on the side of charity, where there was danger of being in error in one way or the other.

I WILL pay 20c each for Jan. and Feb. Nos., and those who want them must pay 25c each. While I am glad for those who have them to sell, I am sorry for those who are obliged to buy. Please do not scold because I was not wise enough to foresee the extraordinary demand and have more printed.

Now, when you send us a No., please put your name on the wrapper. Say "from," and then put your name and address. You have a perfect right to put so much on any mail matter. Whenever you send me anything, put your name on it.

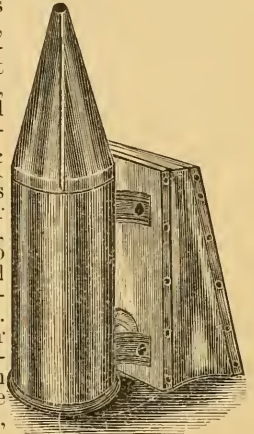
I HAVE been working on a plan of making fdn. at one operation, without dipping sheets at all. Wood blocks were made, as given in another column, and the faces of both were dipped in the melted wax at once. Before the wax had time to cool, these faces were quickly pressed together, pressing out all surplus wax. With small blocks, fdn. can be made in this way that will answer very well, but there are difficulties in handling boards large enough to make sheets to fill a frame in this way. This process will be nice for putting it in the wired frames, for the wires would then be covered completely with wax. Perhaps some of you will work it out before I do.

ONE of our friends sent back a whole dozen cold blast smokers saying they would not burn. An examination of the only one that had been tried showed that the tube was literally stopped up with soot. Some damp or wet fuel had doubtless been used, and our friend had not thought to look in the tube where the trouble was. The soot was all cleaned out with a stick in less than a minute, and the smoker then burned as nicely as one could desire, with dry fuel. With any smoker, I think it will pay you well in time saved, to dry your fuel in an oven.

This, to a great extent, will do away with the annoyance caused by the accumulation of soot. More than a thousand cold blast smokers have been sold this spring, and the only complaints we have had, are evidently from the use of improper fuel.

ANOTHER SMOKER.

OUR ingenious friend, Scovell, has made a smoker that has a direct draft, a positive blast, is very simple, and yet does not "infringe" on any body. The only objection I should make to it, is that it will, like other direct draft smokers, burn up the fuel too fast. I think you will understand the invention from the cut. The large leather valve has a perforated wooden knob in its center. When the bellows is pressed, the valve, in closing, throws the knob against the blast tube and shoots in the stream of air.



MAKING FDN. RIGHT IN THE WIRED FRAMES.

I MENTIONED last month that Mr. Given was making fdn. inside the wired frame, by means of a powerful press. From the samples received, I have no reason to doubt but that he has made a success of the project. Although not quite as nice to look at, I think his fdn. will be just as good for actual use, as that made by the rolls. This invention will enable us to ship frames filled with fdn., just ready to hang in the hive, and the breaking down of a comb, whether new or old, will be practically impossible. As we can now have the fdn. come clear up to the wood of the frame on all sides, it may be well to have a winter passage in the center of each comb. Friend Carlin says 7 or 8 wires to the frame are sufficient. We can furnish a nice article of No. 36 tinned iron wire, on spools expressly for this purpose, that we can send by mail for 10 c. per spool. The following is from Mr. Given in regard to his invention.

I have no wire less than No. 28, and even with that I have no trouble to make fdn. 6 feet to the lb., and without wire, I can make it so thin I don't know if the bees could even find it. I have my presses ready, and am now making up wax as fast as a printer can print; and, by the way, my iron press is just the thing for a small printing press. I find I can sell them at \$25.00, as I get my molding done low, by having several cast at once. In all candor, I think I have just the thing for making fdn.

I made all in frames last year with wire in them. If you noticed, I wrote an article in the A. B. J., in July No., recommending it. Early in the spring, I bedded wire made of copper which was a failure, as the larvae would all die over it. But I afterwards, in June, commenced with galvanized wire, and soon found it was a success. I have been studying on this machine ever since. I made some plates early in the winter cast on plaster, but never could get them accurate till I electroplated my moulds, and now I have no trouble.

D. S. GIVEN.

Hoopston, Ill., April 22, '79.

Notes and Queries.

CHAFF PACKING FOR WINTER.

BEEES which stood unprotected on their summer stands have fared pretty hard the past winter here, but those which were protected with straw, &c., came through all right.
Hamilton, Mo., April 3, 1879. C. B. TURNEY.

Since Mar. 10th, when I last reported to you that I had lost 6 colonies, 7 more have dwindled away. This spring seems to be harder on the bees, in this locality, than the hard winter that we have just passed through. Most of my colonies that died were weak.
R. J. OSBURN.

LeClaire, Iowa, April 5, '79.

WILL BEES SWARM WHETHER THEY ARE CROWDED OR NOT?

I had a house built last year, 7 ft. long, 4 ft. deep and 7 ft. high, thinking they would work and fill the house and not swarm. I was gone through the summer, so I do not know whether they swarmed or not. The hive, I put in on stakes in one corner; they made comb all around the hive, and below it about 2 ft. I had too many openings for entrances, and did not close them, and my neighbors' bees took all the honey outside the hive. I had a door to lock, because boys here make a practice of breaking open hives, and stealing the honey. I am new at the business; there are some men here who keep bees, but they do not know enough about the business to answer this question of swarming.

Patten, Penobscot Co., Maine, Feb. 18, 1879.

MRS. P. CHANDLER.

[Plenty of room will do very much toward preventing swarming, but it cannot be considered as an infallible preventive. It seems to have answered in your case, my friend, but why did you not remove the honey on the outside of the hive, or have your room made bee tight? It is quite a pretty sight to see the new white combs built out in the open air in the way you mention, but the honey is seldom in a convenient or marketable shape.]

HOPES NOT BLASTED.

My bees are now in the very best condition; hives are crowded with them. Drones have been flying for one week. I wintered my bees by contracting the brood chamber to 5 and 6 frames, the frames being filled with sealed honey. I placed chaff cushions between division boards and hive, and then putting two old cotton cloths over the quilt, and leaving top of hives off, I set them in large dry goods boxes, with dry wheat chaff.

This has been a very severe winter on bees in this locality? about $\frac{3}{4}$ of those wintered on summer stands without protection have died, and the remainder of them have dwindled to very weak colonies. My bees came through in nice condition, and I have not lost a colony in wintering.

Lynn, Ind., April 16, 1879. E. JAS. HINSHAW.

I had 9 swarms last fall, but have only 3 now owing to the bee-disease, whatever that is.

One man here has a gum, from which he gets 3 swarms and 200 lbs. of honey every year.

Fremont Center, Newaygo Co., Mich., Apr. 14, 1879.
THAD. L. WATERS.

ABSCONDING MANIA.

On Easter Sunday morning, I had just 36 colonies of bees. About 10 o'clock, they commenced swarming and kept it up till I had 9 colonies less than when they commenced. All were in chaff hives, and on as few frames as practicable, with chaff cushions on top. All had queens, brood, and honey. Some of the very best and strongest colonies I had, left. All had but very little pollen.

What was the cause, and what is to be done in such a case?
I. R. GOOD.

South West, Ind., April 14, '79.

[This is a kind of mania, that seems sometimes to take possession of a whole apiary in the spring, and I hardly know of a remedy that will apply to all cases, unless it is to have all the stocks old and strong ones. An old colony, well supplied with food, very seldom goes into any of these insane freaks.]

Bees have wintered badly. A great many are dead and, unless the weather gets warm pretty soon, more of them will die yet.
JAMES P. STERRIT.
Sheakleyville, Pa., April 11, 1879.

[That is just the state of affairs at our house.]

SWARMING OUT IN SPRING.

I had a swarm of bees which came out about the 15th of March. They flew around a long time, and went about 100 yards and clustered. There were less than a quart of bees. I caught the queen, clipped her wing, and put her in the hive. They came out again in a few days, but, as the queen could not go, they returned. They have been quiet and busily at work ever since. I opened the hive and found eggs, larvae, and capped brood. They were not near full, with no drones and plenty of honey. My nephew says he thinks he saw another queen, but he is not reliable in that line.

DEAD BROOD AFTER TRANSFERRING.

I transferred one colony about the same time from an old rotten hive. They were very weak. In a few days, they came out. I caught the queen (she was clipped), and examined the hive. They had brood in all stages, but not one drop of honey. I fed them on syrup, but they came out again. I took a frame from another hive with honey in it, and they came out again. I examined again and found the brood which I had transferred all dead—drones and workers. Was it "foul brood" (I have been reading for several years about foul brood but never saw any unless this was it)? or did I kill it transferring? I have transferred many colonies, but never lost any before.

Cabet, Ark., April 6, 1879.

B. F. CATHEY.

[The swarming out first mentioned was probably because they were weak in numbers. It is nothing new for beginners, such as your nephew probably is, to imagine they see queens wherever there are bees. Your second colony, probably, let their brood chill, when they were at the point of starvation. There are no indications of foul brood, or anything like it, as I understand the case.]

THE "ARTILERY" SMOKER.

As my old mustang took to bucking yesterday and threw me, giving me a tremendous jar, I had somewhat of a restless night; and, in imagination, peeped through the key hole of your sanctum, to see if anyone was promenading around the stairway; but "nary". All was quiet so I delved a little outside, and wondered if the old man of 60 years hadn't matured in mind, something that may be utilized to advantage by bee keepers:

A telescope adjustable smoker sliding up and down, for any desired elevation on a rod, or its equivalent, thrust in the ground, with a swivel like attachment to turn at any angle of elevation.

I deem it here unnecessary to point out the advantages, as they are numerous and will readily be comprehended.

Now, if you approve of the idea and feel disposed, please test it by actual application and report.

"O praise the Lord for all his benefits", and particularly for the falling rain, which we think is very much needed.

Tustin City, Cal., April 4, '79.

S. D. HASKIN.

[I am not sure, friend H., but that your idea is a good one. The smoker would not have to be laid down and picked up, and as the stake would be equivalent to one hand, it could be worked with much less power and fatigue. To facilitate sticking the staff firmly in hard ground, with but little trouble, I would say, get a stirrup to put the foot in, in forcing it down securely. Who will work out the idea?]

"BOY POWER" VERSUS FOOT POWER.

I have rigged a crank attachment to my Barnes saw, by putting up a counter shaft on blocks, at the foot of the machine, running it by a belt from a 3 ft. wheel set in a frame about 7 ft. away. The shaft on which the wheel is hung is set on rollers, and there is a crank at each end. My two boys will just make those saws hum. Besides, I can also run the foot power in connection with it. My thick saw troubles me a good deal, by the teeth filling up, making it run slowly and hard. Would it not be better to take out every second tooth, thus giving more space between them? [Yes, I think it would. See answer on p. 181.]
Atwater, O., April 8, '79. J. MATTOON.

Last summer I had 14 swarms to work with, increased them to 30, put them up for winter, and lost one by mice and one by robbing. I sold last summer \$35.00 worth of honey, besides having considerable on hand at present. I used your sections.
Jackson, Mich., April 17, '79. JOHN W. WOOD.

I have tried the smoker, and it works like a charm; nothing could do better. I have lost heavily in bees, 16 stands; but 2 stocks came to me to help make good the loss. I feel discouraged this spring; the bees do not act as in other springs. Robbers have troubled me.
J. N. MOORHEAD.

Guilford, Mo., Apr. 17, '79.

The bees are behaving badly here, this spring. A great many have left their hives filled with brood and plenty of honey, and come out as they do where they swarm, and gone into other hives. This is a general complaint all through this section among bee keepers. On opening the hive every thing looks all right, young bees are hatching and brood is plenty. They were never known to do so before. Can you or your correspondents tell the cause, and the best treatment under such circumstances.

Fully $\frac{1}{2}$ of the bees died last winter, in this county.
Watseka, Ill., Apr. 18, '79. W. H. SHREDD.

[See answer to other similar inquiries.]

I can read last year with one swarm, and increased to 4, and get 39 lbs. of honey with the old box hive. Is not this well for a "greenhorn"?
Montrose, Pa., Apr. 14, 1879. R. G. HORTON.

HUMBUGS AND SWINDLES.

I was pleased to notice, under the head "Humbugs and Swindles," a complimentary notice(?) of Mrs. Lizzie E. Cotton. She (or he) deserves it. Several of us have been swindled. We ought to have known better, but we supposed the person to be a lady, and corresponded with and trusted her as such; but we were sold.
H. H. BARNES.

Lowell, Mass., Apr. 16, 1879.

My 15 colonies of last spring increased to 31. They are all packed in chaff, and have wintered very well so far, except one late second swarm which died a few days ago. It had the dysentery. I am located in a valley, at the foot of the hills, which protect me from severe winds. I run my saw by horse-power; when cutting stuff for sections, I put on two horses. This goes better than foot-power "you bet."
HENRY LIPPERT.

Meadville, Pa., Apr. 11, 1879.

Send me a cold blast smoker, quick! had a bee on my stocking! Oh!
JAMES HUDDLESON.
Victoria, Iowa, Apr. 18, 1879.

BADLY DEMORALIZED, BUT BOUND NOT TO GIVE IT UP SO.

Bees have wintered badly in Wisconsin. Accounts reach me from every side, that 50 per cent of the bees put into winter quarters have died. Not even chaff hives saved them. My loss has been about the same, although a new beginner; 15 out of 23 are lost and a few more are yet to be heard from.
A. W. WILLWARTH.

Embarrass, Wis., Apr. 17, 1879.

HOME MADE MANDRELS.

The way I made a mandrel was this: I got a Buckeye Moving Machine pitman, $\frac{1}{4}$ of an in. in diameter, cut out a piece about 14 in. long, got threads cut on one end, and got two, eight square nuts, and put the saw between these two nuts. My expense for blacksmithing was \$0.15; the balance I did myself. The saw works nicely. It is a hand ripper.

Bees have suffered badly. Bee-keepers of this section do not use any chaff about their bees or any thing else.

Very few of them have ever seen a smoker in their lives; a great many have not even heard of one. I have 3 stands of bees out of 11, but I won't go into Blasted Hopes yet, but will try again.

Three cheers for Corey and Clark. T. J. COOK.
Newpoint, Ind., Apr. 15, '79.

Spring is backward. A great many bees died last winter. One man lost 30 stands, all he had. I wintered 7 out of 10, thanks to GLEANINGS.
Reesville, O., Apr. 14, '79. H. C. JOHNSTON.

My first natural swarm came out this season on 2nd of April. I have the 7th out to-day, besides having made 4 artificial swarms. The honey crop was certainly cut short some by the freeze on the 5th of April. Many flowers were cut off by it. Among the honey yielding flowers that were injured, is the holly; its bloom buds were just visible. Also the China berry tree, *Melia Azedarach*; it does not grow north of Va., and is not generally known as a honey yielding tree; but I have observed it to be so, for a number of years. Please answer this question: do bees die from poison honey of any plant? Dr. B. says he loses many from the poison honey of yellow jasmine. Do wild cherry flowers, like the fruit, contain prussic acid, and cause the death of bees? W. K. NELSON.

Augusta, Ga., Apr., 14, 1879.

[We have had reports of plants of which the honey poisoned the bees, but I do not know of any that are well authenticated. I do not think the small portion of prussic acid contained in the wild cherry, or peach either, sufficient to do any harm to the bees.]

ITALIANS AND DWINDLING.

I have been bragging about my bees wintering so well. I had 14 to start with in the winter, and now I have 15 all in good order, and drones flying every day from nearly every hive. A swarm came to me on the 15th, and lit on a peach tree right in my apiary. I put them in a hive, killed their black queen and gave them Italian brood, and now they have $\frac{1}{2}$ dozen queen cells started. Is this not a good report? My bees are all strong, and in place of dwindling, as so many claim the Italians do, they are getting stronger every day. I cannot believe they dwindle any worse than the blacks. I know of 6 men using the Simplicity hives in this part of the country, and they have not lost one swarm in wintering, while I know of 2 men in our county seat that have lost 200 out of 300 in the Am. hives, for they told me so themselves. JAMES PARSHALL.

Union Valley, Mo., April 15, '79.

THE BEE MALADY.

Several bee-men have suggested that one cause of the great bee malady the past winter was owing to a scarcity of honey during the fall months, which mostly stopped their breeding, and consequently the bees that went into winter quarters were mostly old ones; but where I was last fall, there were many large fields of buckwheat; so, last week, I wrote to a man there who had 150 stands, and asked for his report. He says he has lost $\frac{2}{3}$ of them; he also says he thought himself secure to winter in *any* hive. He thinks he was too tender of them, and bundled them too close. Many of them moulded.

A. A. FRADENBURG.

Port Washington, O., April 21, 1879.

[A great many explanations have been given, but the facts brought forward seem to overthrow most of them. I am decidedly in favor of fall feeding for heavy stocks. I have never lost one of the colonies I have used late in the fall to fill out sections by feeding, nor have I ever known such a one to dwindle.]

WINTERING IN DOORS, AND WINTERING OUT DOORS.

I uncovered my bees (they were under the evergreens) last Monday; I found them *all dead*, with that common complaint, dysentery. I never will try to winter on summer stands again. Our winters are too long and cold. There has been no time since last November suitable for giving my bees a fly, till this week. You may as well put me in *Blasted Hopes*. I lost 11 out of 12 colonies in my cellar 2 years since, and I am now satisfied that it was all owing to want of *proper ventilation*, as my cellar is not what would be called damp. C. BUTMAN.

Plymouth, Maine, April 18, '79.

[If I am correct, my friend, your evergreens were just the wrong kind of protection over the *outside* of the hives. I feel sure, that ventilation is not your trouble. In some cases, cellar wintering seems to have resulted more favorably this last winter, but in others the losses seem equally as great. Our neighbor, Blakeslee, who has for years considered his cellar *sure*, has lost heavily by the dwindling.]

SUGAR, WATER, AND FLOUR.

I have been experimenting since I received the April No., with water, sugar, and flour, to be fed inside the hive. I find it will work; the only trouble is, the bees will soon have all the water out of

the bottle. I made a case of tin, about 5 in. high, and so large that it would just fit inside of a brood frame. Over the top, I placed a box to hold the sugar and flour. I have a hole through the top of the case for a lamp wick, and a larger hole to fill it by when empty. It can be filled without taking it from the hive, and will last the bees for several days.

J. R. ANDERSON.

Washington, Ky., Apr. 15, 1879.

THE FRUITING YUCCA, THE PLANT THAT BEARS "TEACUPFULS" OF HONEY.

Enclosed you will find seeds of the fruiting yucca, mentioned on page 100 of March GLEANINGS. I ate the fruit the day before I received GLEANINGS for March. If I can get more fruit, I will send you some, as I suppose it would be quite a novelty to you. The yucca does not grow wild here, but 80 miles south of Palestine it is often seen.

JAMES G. SMITH.

Palestine, Texas, March 8, 1879.

[Many thanks, friend S. The seeds have been planted, and, in due time, we hope to have seeds to give you all. I should be very glad indeed to receive a specimen of the fruit.]

FRIEND J. P. MOORE'S OPINION OF THE BEE MALADY.

Snow is now about 3 inches deep this morning, and still coming. Chaff packed bees are all in good shape, but many are dying in cellars and bee repositories. Having studied the causes of dysentery, of bee cholera, or spring dwindling, for several years, I have arrived at the conclusion that the cause is always to be found in the diet, aggravated by confinement in the repository, or by want of protection on the summer stand.

J. P. MOORE.

Binghamton, N. Y., April 17, 1879.

OUT DOOR VERSUS CELLAR WINTERING.

I am pretty well posted in regard to bees in this vicinity, and they average $\frac{2}{3}$ dead with prospects of more dying. Some have lost 9-10 now. I wintered 23 stands out doors, all of which are very strong. I also wintered 90 in bee repository, and lost some, while some are so weak that I am afraid they will go up. Others are very strong. I have experimented on some swarms every winter for 23 years. I put up some in a different way each winter, and I find, when properly put up out of doors, that there is less danger in wintering them than in wintering sheep or cattle.

W. H. BALCH.

Oran, N. Y., April 15, 1878.

ONE OF MANY.

Send me an Italian queen right away. A queenless colony has lit on a fence post. I do not know where they came from, but they act as if they would like to live with me. It has been a bad spring here for bees, and many have died. Send her majesty as soon as you can.

CLARK D. KNAPP.

Albion, N. Y., April 23, 1879.

[From letters like the above, and we have many of them, it seems that our apiary is not the only place where queenless stocks are to be found, since this spring dwindling and swarming mania have gone over our land. In trying to supply our customers, we have made our apiary nearly queenless. It is a very difficult matter to supply queens in April, especially during a backward spring, and I am very sorry we can not get up queens to order, at any season of the year, as we do smokers and other things. There is no way, my friends, that I can see, but to wait patiently until the new "crop" comes, even though swarms do hang on the fence post queenless.]

LOSS OF QUEENS DURING THE "DWINDLING" SEASON.

Now, tell me, in May No., why I should lose 18 queens, out of 59 swarms, each hive being packed in 6 in. of chaff all around except in front, on summer stands. Bees all came through the winter but 3 swarms; one of them was queenless, but full, and in the other two, the combs broke down in the winter and drowned the bees in honey. The hives were clean where the queens were dead, and most of them showed by the brood that the queen had not been dead long. They had plenty of honey, and most of them plenty of bees. There is a loss of about $\frac{2}{3}$ to $\frac{1}{2}$ of the bees in this part of the country.

Holstein, Wis., April 21, '79. A. A. WINSLOW.

[Your queens died precisely as in our own hives. They would be all right, combs containing both

brood and eggs, but when the hive was opened a week after, we would find nothing but sealed brood, and a search for the queen showed her to be missing. At first I thought they might be killed by handling the combs carelessly; but in transferring box hives, we found precisely the same state of affairs. One feature that I cannot quite understand is that many times no queen cells are started. This is so very unusual, that I can account for it only by thinking it in some way connected with the dwindling troubles.]

THE BEES THAT "REPENTED."

Mr. Taylor, of this place, has a colony in an L. hive. On the 7th of last month, the weather being rather warm here for the season, they swarmed, leaving an ample stock in the hive. They were followed some distance, but were lost. On the 29th (22 days after), the rest left the hive. Mr. Taylor then examined and found 15 lbs. of nice honey in comb, and the hive in good condition. The weather was then quite cool; the hive was swept out, and honey left. On the 5th of this month, 8 days afterward, the bees returned and are now in fine condition and working splendidly. Now tell us why should they have acted so strangely?

J. B. COOPER.

Coles Station, Ill., April 22, '79.

[Is your friend sure the bees that returned were the ones that went away? It would be nothing strange that a swarm should desert a hive, and another come and take possession a few days after. Still, it may be the same one came back; the honey they could carry away might last them 8 days, and after that was exhausted in living in some old tree, or other cavity, they might, like the prodigal son, remember the plenty they had left, and return. I have known them to come back next day, but never before after they had been gone so long a period.]

Mr. Root, I have seen it stated that you have some very choice queens that you would not take \$50 for. Buchanan, Mich., April 4, '79. WM. BLAKE.

[The statement, I think, was made by one of the friends while arguing against dollar queens. I have not now, and have never had, a queen I would not sell to any one who paid the price published in price list. Our young man who has charge of the apiary, has never had any instructions to reserve any queen. Our highest priced queens are simply dollar queens that have been tested, and nothing more. All are reared precisely alike.]

Honey Column.

Under this head, will be inserted free of charge, the names of all those having honey to sell, as well as those wanting to buy. Please mention how much, what kind, and prices, as far as possible. The prices quoted in our cities for honey are, at present, too low, to make it worth while to publish them. As a general thing, I would not advise you to send your honey away, to be sold on commission. If near home, where you can look after it, it is often a very good way. By all means, develop your home market. For 25cts., we can furnish little boards to hang up in your door yard, with the words "Honey for Sale" neatly painted. If wanted by mail, 10c. extra for postage. Boards saying "Bees and Queens for Sale," same price.

CHICAGO.—Honey—Choice, in single comb boxes, 10@13c. Extracted, 6@8c.
Bees-wax.—Choice, yellow, 23@25c. Darker grades, 16@18c.

NEW YORK.—Honey—Best comb, 12@15c. Extracted, 7@11c.
Bees-wax.—Choice, 25 to 30c.

CINCINNATI.—Honey—Best, in single comb boxes, 10@12c. Extracted, 8@10c.

CALIFORNIA.—Honey—Comb, 9@11c. Extracted, 4½@6c.
Bees-wax.—Best, 30@31c. For darker colored, 20@22½c.

NEW JERSEY has a law against the adulteration of honey, which, if enforced, will wind up the business most effectually. Good for New Jersey. I will give the law next month.

The contents of this leaf and the one following are not directly connected with the subject of bee-culture. On this account, I make no charge for them, and, if you choose, you can cut them out without reading.

Our Homes.

For as I passed by, and beheld your devotions, I found an altar with this inscription; TO THE UNKNOWN GOD. Whom therefore ye ignorantly worship, him declare I unto you.—Acts 17: 23.

The next day, which was Saturday, seemed such a quiet and still day! I presume I shall always remember it. I felt that I had "enlisted," but as yet there was no command to "march." I was so mild to the hands, that several of them looked at me inquiringly, and I believe one of them asked if I was well. How I did long for evening. Do you know why? It was because I wanted to get that Bible all alone by myself, and drink more of those waters of life. Eight o'clock came, and I felt that my work for the day was over. My partner had not been there that day. I closed the store, and started for home with hasty strides. I knew where the Bible lay, and I opened the door with the purpose of going straight for it. Company was there; it was a skeptical friend and his wife. I stopped abruptly; then, thinking it would not do to follow out my plan while he was there, I sat down in a chair near the door. My orders to march came with a voice that was startling.

"Are you keeping your promise? is this the kind of soldier you are going to be?"

I started to my feet, and said pleasantly, I had come home thus early, to read the Bible. My friend arose then, and said, as nearly as I can recall it,—

"Hallo! has our main prop gone? You read the Bible?"

"Yes; I think I ought to read it."

"What are you going to do about the sun and moon standing still and all that?"

"I am not going to do anything with it."

All disposition to argue in regard to the Bible was gone. I read again, until nearly 12, and that evening I talked with my wife a little about it, but my disposition to talk very much was gone; I was rather waiting to hear from others, and from the Bible.

During this second evening, I read of the parable of the sower and his seed. It was not particularly new to me, for I had learned the verses when a child, in the Sabbath school, but this night, it took a most powerful hold of me, and as I read Christ's words of explanation to his disciples over and over again, the wonderful beauty of the passages seemed to fill my very being. I had heard sermons on the subject, and, as I read, I thought, and may have said aloud, "O! what would I give to have that young minister preach from this text to-morrow?" This was my first experience of answer to prayer, and as it has been a very constant and active element in my life during the last four years, I wish to dwell a little on it. For some little time, when things were sent, or turned out unexpectedly, just as I had asked for them, I was inclined to think them only happy coincidences; but, in a little

time, it seemed as if this new Presence were saying to me by acts, if not in words, "My child, I take pleasure in giving you all you ask for, so long as you are in an obedient spirit, and ask for things that will do you good, and not harm."

I had not said a word to the young minister, for, in fact, I had not thought that it concerned him at all that I had changed all my purposes in life. What a happy morning it was as we, my wife and the children, all went to church together. We sat with my father and mother, who had for years occupied a seat near the pulpit. When the minister read the parable of the sower and his seed, and then selected his text from the same lesson, I was almost startled. I cannot tell you how I drank in every word of that sermon; how, again and again, as he went on, I resolved to consecrate the remaining portion of my life, to sowing good seed, in the place of the evil seed I had so far been sowing. Toward the close of the sermon, my feelings began welling up to a point where I felt sure I should break out sobbing, if I were not very careful. What a happy, happy life was spread out before me! The closing prayer, only seemed to rivet and seal the resolutions I had been making. The congregation rose to sing the closing hymn. The tumult of joy within was getting to be more than I could stand under. Great waves seemed rolling over me, and as each one came the joy and happiness seemed so great, I almost felt like praying that God would stop it, for it was too much for a human being to bear all at once. My position was one where I could overlook the congregation, and I seemed to feel every thought of the minister; while many of his hearers seemed so careless and indifferent, I felt as if I must appeal to them each one, personally. If I recollect aright, one verse of the hymn was,

"Oh turn ye, Oh turn ye, O why will ye die?"

A few days before, I had been wondering how it was that God could create a human being for such a miserable, unsatisfactory life as mine had been. Now, I wondered how one could live without continually singing praises, for the opportunity of doing good and helping others, that spread out before me. Another of those waves came, and I felt my strength failing; to divert my mind, I turned to little Blue Eyes, who stood by my side, and began tapping her on the cheek, to make her smile, for I dared not listen more to the inspiring words of that hymn. Meeting was out; I wanted to get home; I wanted to get away by myself, with God who had so wonderfully revealed himself to me. An atmosphere of love and gentleness was about me. I loved every body I passed; even the horses at the door seemed to have a new relationship to me. What a beautiful world! How beautiful the sunshine! My wife read me, if no one else did. Why did no one speak of that wonderful sermon! I expected to see every body take every body else by the hand, and that all would gather round the minister to talk about it, but not a word was said. I did not go up to him; for I could not speak. On the way home, a lady made some casual remark about the sermon. Her companion replied that it seemed rather

a dull sermon, and that Mr. R. scarcely preached as well as usual. Was it possible? Had the difference really been with myself, and not with the sermon? I hurried home, and as some friends were there, I hastened down into the green house.

As soon as my wife could excuse me and herself, she came down. I tried to talk, but could not. Great sobs convulsed me, and the tears came down like rain. The bees buzzed back and forth merrily at my side, totally oblivious (poor little creatures) of the revolution that was going on within my soul. I cried until the clean sawdust at my feet was wet, before I could talk, and then I began to tell my wife of my past life. She, like a true wife, would have hushed me up, and been perfectly satisfied with dropping the past, but the new Presence seemed to tell me plainly, that my hope of safety, and my freedom from this old sin, depended much on a full and complete confession. I told her the story I have tried to tell you, stopping and breaking down again and again, as I proceeded. While I talked, old things seemed to pass away, and the new life seemed to unfold and spread out. New recesses in my being that I had not before suspected of existing, seemed being opened and aired, and although humbled before my Savior, I seemed to have risen up as a man and as a father to my family. I held my wife's hand that Sunday afternoon, and put my arm about her, with a hundred times more love and happiness, than I had experienced in the days of our courtship. Our Savior's benediction was over us, and we both felt, for the first time in life, that that which God binds together, man cannot put asunder. Although her conversion was not of the tumultuous kind like mine, I think she was from that day forward just as fully accepted by our Savior as I was, and perhaps more so. For weeks and months afterward, I kept confessing things I had forgotten to mention during that Sunday afternoon. I do not know what God calls on others to do, but I do know that my strength as a Christian consisted much in bringing all these evils to the full light of day. Many times, it wrung her heart with anguish, but she could look up through her tears, and thank God that not even a vestige of that old life was left now, about her husband.

The tears and confessions were all right so far as they went, and had I died just then, I have no fear but that my Savior would have accepted me; but work lay before me, and I was to be called into action sooner than I expected. It seemed that God had no purpose of letting me sit still and talk of my new life, but that his purpose was to try me, day by day, and at times, it has almost seemed, hour by hour. That evening I was again reading the New Testament, happy, as I had been through the day; I came to the passage about the legion of devils being driven from the man, and allowed, by their request, to go into a drove of swine. "What is this?" said I, and I read it over again. What had devils to do with a drove of hogs, and how could it hurt spirits to have the hogs run down into the sea, even if they did do so. I used to be a great reader of the Ara-

bian Nights, and when I began thinking of it, it seemed sure to me that this had been copied from that book.

"Do you pretend to say that you believe such jargon as that?" said the voice of the Tempter, and when I stopped to consider the matter, I almost fancied I heard his jeers, and those of the crowd with him. I looked up, troubled, and the light hearted smile had gone from my face. I told my wife in despair, that I could not believe what seemed to me such arrant nonsense. She, dear woman, had far more faith than I, and, after a little study, told me to go down and see that young minister about it.

"But it is after 9 o'clock, and he will be gone to bed."

"Never mind," said she, "he will be glad to see you, even if he has. Go right along."

How often I have thought of this little incident since. I wonder how many of my ministerial readers would hesitate at getting up under similar circumstances. It seems to me I could not only get up, but go miles in the night, if need be, to help one who was in the same trouble I was at that time. What inconsistency! A legion almost of devils had just been banished from myself, but when I came to read about them, just because I did not understand it all at first sight, I was tempted to throw down my Bible in disgust. The minister had not retired. How kindly he spoke to me, when I attempted an apology! I explained the trouble.

"Why! Bless your heart, Mr. Root! and did you think you were the first person that had been stumbled at that passage?"

"Has it really, then, ever troubled any body else?" said I, beginning to take a little hope.

He smilingly took down a large book, entitled, I think, *Demonology*, and told me to take it home and see what great and good men had to say about it.

He is a very pleasant man, and there is a vein of rare humor in his make up, which twinkled in his eye as he asked me which book I thought was written first, the *Arabian Nights*, or the Bible. We knelt down and as he prayed that God would guard me from the temptations of skepticism, how near he seemed to God! He talked to him, almost as if he were talking to some visible person in the room. My faith had come back, even before I read the book, and he assured me that I should be heartily welcome, at any time I might care to have his counsel and advice. How different he seemed now—the man I had felt so bitterly toward, but a few days ago! Now, my friends, I wish, most particularly, to emphasize the point I have illustrated. Almost all of you contribute, in some way, to the support of a minister. I do not know who that minister is, and I do not know that I care much; he is God's appointed servant, and he is the one to help and to counsel you. Go to him in the way I did, and see if it will not cheer and encourage him, even if it does not you. If he is not just what he ought to be, such visits will make him better; for God always takes care that his servants have wisdom given them, in proportion to the demands they may have

for it. If all of the people would keep this friendly relation toward their minister, and ask his counsel on matters of this kind, I am quite sure he would be in little danger of guiding into error.

On Monday morning, as I went to my work, I began to feel most keenly the difficulties that I should have to contend with in leading the new life, in the way I had promised my Savior I would do. If I recollect right, my partner was there before me, and I saw in her only the woman I had first met perhaps ten years before, and my feelings toward her were just the same as if those years had not passed, or as they were towards any the rest of the girls. I told her that I had resolved, from this day forward, with God's help, to be a Christian. She said at once, that she was glad of it, and I am sure she spoke honestly, for, from that moment to the present time, neither by word, look, or action, have I had aught but encouragement in the new life I have been trying to lead.

Almost in the very hour of my change of purpose in life, God, by a power that seemed almost miraculous, obliterated the past, and raised a great wall, as it were, that seemed at once to cut off the old life from the new, and I have every reason to think she held this sudden change in my life, as sacred as did I myself. Shortly afterward, the business was put in my own hands by purchasing her interest, and the matter was discussed in regard to the expediency of her remaining in her position as book keeper and general manager of the business she had been so many years engaged in. My wife insisted that she should, if she chose, remain, and go on with the work as if nothing had happened. On submitting the matter to the minister, he said if we all three knew our hearts were right in the sight of God, his advice was for us to go along with our business as if nothing had occurred. I am aware that many will object to such advice, and an own sister of mine objected strongly, to such a course of action, saying it was more than humanity was equal to, and that it was not right to be every day exposed to the temptation of going back to my old life again. I grant you that it is more than human, and that is just why the religion that Jesus taught is needed by stumbling humanity. You have all known instances, I presume, where intemperate men have, by conversion, had the appetite removed, as if by a miracle, so effectually, that there was left not even a desire for the drink that had for years bound them as by fetters. Cases where men have had the desire for tobacco removed in answer to prayer are frequent, and in our town, we have had several such cases, after the men struggled weary months alone and finally went back, slaves to the appetite. The transition, in my case, was so perfect and complete, that when some relative advanced the idea to my wife, a few months after, that there might be danger, she laughed merrily, at an idea so ridiculous, knowing as she did the complete change there had been in my life, through and through. Had I dropped my Bible and gone back to skepticism, there would assuredly have been danger, but none

so long as I was earnest and full of sympathy for my Savior and his work. I wish here to speak of one strange feature of this new life. In my dreams, for months afterward, I was the same old self still, and on waking, and feeling my Savior near, the change was so great, that I again and again broke out in words of thanksgiving and praise. I used to wonder why it was, that in my sleep, I never dreamed of God, or of calling on him, while battling against temptations that were sure to prove too much for me in my dreams, but it seemed to be something that my imagination, while reason slept, could not comprehend. It was just about a year and a half after my conversion, that I began to dream of praying, and I remember well the first time. I dreamed of being in a fury of anger, as in the olden times, and that weird beings were inciting me to push ahead recklessly, as I used to do. Finally, in my dream, I thought of prayer, and as I mentally called for that great Friend that had shielded me so much, these images of my dream, began backing away with uplifted hands, and I heard one of them say distinctly, "Behold, he prayeth!" seeming to indicate that they knew even my thoughts.

Ever after this, when these bad dreams came up, I, even in my dreams, prayed, and in a few weeks they vanished from me completely. No more do I dream of uttering foul oaths, or of giving way weakly to temptation as I used to in times of old. The old life lives in memory, to keep me humble and to help me feel for others who are weak, but no farther.

A few words in regard to my partner. She is still at work among a great number of other clerks, is interested, like all the rest, in the growth of the business, and the mission work that has sprung up along with it. It was she who first originated the name *Gleanings in Bee Culture*, and for the first few years, she had much to do with the general supervision of the paper, doing all the proof reading, etc. Within the past ten days, we have had almost the only serious disagreement between the hands and myself, and when a great part of them were on the point of leaving what has become to them almost a home, she came in among the troubled elements and restored peace and tranquility, by the suggestion of a brief noon day prayer meeting, or rather perhaps, Bible class. Hands that would have declined an invitation to take part in such an exercise, from almost any one else, came, in a body, at a request from her, and now it is a permanent feature of our institution. Cannot God's power save us from our sins? would it have been better that she should have been driven away from her place of work, where so great a part of her life had been spent, simply because I had all along been a bad man, while pretending to be a good one?

Now, my friends, I feel as if I could talk to you. You know all of my past life, and what I have passed through; how I have been raised up, not in my own strength alone, but by the strength of a mighty arm that never fails, when we go to Him with a

sincere and earnest wish for help, and with a disposition to do right. When I try to tell you in my earnest way that God's love is not a thing that is to be talked of only on Sunday, and at arms length, as though it were a subject that could not well be spoken of without embarrassment, you know just what I mean, and why I speak thus. When I talk to husbands and wives as I am now going to speak, you will listen to me, because you know that I am on familiar ground, and am not speaking of things I know only by report. I have written on temperance, and with God's help have done good; but you can now see why it was that, all the time, I was thinking of an evil that, since my conversion, has been regarded by me as Satan's child, twin sister to intemperance; it is the Devil's work, in the one case as in the other, and in both, he will persuade the poor victim until the very last moment, if possible, that he is doing right, and that there is in this vast universe, an excuse for his wickedness, and for his wrong doings. A short time ago, a reformed intemperate man confessed to me that, after he had been a sober man for years, he had allowed a feeling to get possession of him, that he needed a little stimulus to tone him up, because he was not feeling quite well. He dwelt on it, until the idea seemed reasonable and right, and the poor man might have gone down to ruin, had he not decided to tell his wife of this notion before procuring anything. She, poor woman, with her free and undimmed faculties, recognized the cloven hoof at once, and, at her suggestion, they both went down on their knees, and implored the great God who had saved him before, now to open his eyes, that he himself might see the Evil One through this thin gauze so transparent to every body except the poor victim. He told me this himself, to illustrate the danger of one who has once fallen. Well, within the past week, among great numbers of letters in regard to these recent HOME PAPERS, came one from a married woman, a professing Christian, and a member of a church, confessing that, although she had a family of grown up children, she loved another more than her husband, and more than she loved her own life. She told this, and lamented it rather as if it was a misfortune, than as a sin. Give me, O God, wisdom, give me energy, and above all, give me of thy Holy Spirit, that I may induce thy people to shake off the lethargy into which Satan has brought them, so that they cannot see the awful state in which they are, and how utterly impossible it is that they can ever enter the Kingdom of Heaven, while such thoughts are allowed to exist within their bosoms unrebuked. Rouse ye, O ye slaves of this foul sin, that Satan in his unblushing impudence and effrontery would set up before the very gates of Heaven, and persuade his victim all the time that he is on the road to the Celestial City. Rouse ye up, and remember who it is that uttered these words: Thou shalt have no other gods before me.—Ex., 20:3. I the Lord thy God am a jealous God.—Ex., 20:5.

Before my conversion, I never understood why the first of the commandments was in

regard to worshipping other gods. I did not dream that it referred to other gods than those of the heathen, made of wood and stone; but when I asked God to show me, I saw at once his wonderful wisdom in putting this commandment before all others; I saw, too, how fearfully I had trampled down this first and most important commandment of all. My friends, if you obey this one, if God is first and foremost in all your thoughts, if his Holy Spirit fills your being, you can be happy anywhere. I can almost say it does not matter who or what your husband or wife is, the love that God gives will soften and melt away the worst traits of character a human being can possess, and if even one of you has this love in your hearts, the other must catch some of it, sooner or later. If your husband is unlovable, rejoice that God has given to you the work of softening and moulding him to better things. See that your own heart is right in the sight of God, and mountains can be moved, in the way of reclaiming a companion.

My wife and I were speaking this morning, of how wonderfully God's love cements and holds together that of husband and wife, of how powerfully it acts to drive out every thing foreign, and every thing that tends to break that happy harmony which Heaven itself seems to have instituted. My friend who was tempted to drink went home and told his wife, and was from that moment safe. If you are tempted in any way, go and tell your wife or husband as the case may be, and you are safe. Let there be no secrets between you two. Have the charity for your partner in life, that you would have for your left hand, if it failed to perform the work that the right does. Do not lose sight for a single second of the fact that God has brought you together, and declare in your hearts, day by day, that nothing earthly shall come between you. If you are conscious of having been the least unkind in word or manner, as you hope for happiness here on earth, go at once and ask forgiveness. Many and many a time, in the last four years, have I, at night, knelt by my wife's side, and confessed to her my shortcomings, not so much in deeds, as in thoughts, and so humiliating have been these confessions sometimes, that I have asked her how she could have any respect for such a man for a husband. Her smile and her words of confidence and trust have always made me strong, and after such talks, I have always gone forth to my daily duties stronger and better for the consciousness that she was thinking of me all day long, and that she, too, was praying that I might not stumble and falter. God has pronounced a blessing on the marriage relation, and a blessing follows those who are faithful to it, but a fearful curse hangs over him or her, who, even in thought, would forget the promise made before God.

I do not care, I can almost say, what the circumstances are; you are man and wife, and the quicker you set about making the best of it, the better for you. I can get the idea I wish to convey before you in this way, I think.

Our children said yesterday that a family was to move in next door to our home, hav-

ing a number of very unruly children. As there is no fence between the two houses, there was a general murmur to the effect that we could not have them there. I reprov- ed them, and said we ought rather to rejoice at the great opportunity it would give us, for doing them good, and teaching them better ways. When the worst boy in town comes to me for a place in our factory, I rejoice at the prospect of being able to make him bet- ter, and I know of no pleasure in this world, equal to that of seeing a bad boy grow better under the effects of patient care and toil, and, if you choose, long suffering with his bad points. When I started to reform, I discovered that God had given me a wife kind and forbearing almost to a fault, and one who has been lifting and helping me nearer to God every day of our lives; and so I can hardly say what I would do, had I one of the worst women in the world for a part- ner through life. Would I rejoice at the prospect of doing good, and making her bet- ter? With God's help I would try to, and I hope no thought might ever enter my head of being unfaithful to the poor companion by my side, just because she was bad and I was good. If we learn to rejoice when we have trouble, and rejoice when we have happi- ness, we shall rejoice all the time, and that is just the point exactly. Do you say you have tried long and faithfully? You have not tried hard enough, long enough, or gone to God as you ought, or your companion would have been softened. A human being who is chastened by sorrow and trouble, whose heart is really pure before God, can almost do miracles, in the way of reforming others. If you have not succeeded, I tell you there are grievous sins lurking in your heart, that must first come out. You are not where you *may be*, and where God *wants you*. Think of the woman, a professor of religion, who confesses that she has all her life loved another man more than her hus- band. Are you one of that class? You have been cherishing and harboring thoughts that will surely carry you to the bottomless pit. Nay, you have allowed such a thing to take root, while you are still a member of the church; you, who have promised to love, cherish and live for your husband and chil- dren, have been loving and cherishing some earthly object that stands between you and God, as surely as the idols of olden time stood between the children of Israel and the God that was guiding them. The worst feature of it is, I am afraid you will say that you can not help it. Now, my friend, if you have any confidence in me, or my teachings, believe me, I implore you, that so long as you let this stand, you are in truth a child of Satan, and on the sure road to being lost eternally. Go down on your knees, this minute, and implore God to forgive you, for this great sin against those near and dear to you whom he has given you, and tell him that, with his help, you will root out this image of clay from your very thoughts, and let that of Jesus, your Savior, stand in its stead. I know full well, how Satan battles, blinds, and deceives us, how he pictures im- aginary goodness where it does not exist, and how he persuades us that we are unfor-

tunate when we have only reasons for thank- fulness. Ask God to open your eyes, that you may see, and put away every vestige of those foolish and wicked thoughts, if it takes every bit of strength and every last breath you have to do it. Keep singing that little hymn I gave you,

"Jesus, I my cross have taken
All to leave and follow thee,"

and be sure, my friend, that you do take up that cross at once and forever. Let there be no slipping and stumbling, and be sure you do not, like Lot's wife, take so much as a parting glance in the direction of the forbid- den ground. Take up this path and God will strengthen and bless you. May he raise you up in his arms, as he did me, if you are weak and human, and may he also, O my brother or sister, give, in reward for your right doing, that sweet peace and contentment he has given me; may he, when you come to die, have reason to say, "Well done, thou good and faithful servant; enter thou into the joys of thy Lord."

I wish that I could take you by the hand, my poor stumbling friends, even as my Sav- ior has helped me. Once more, may God bless you, and may I soon hear that you are strong in him, whose strength is like the solid rocks.

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*J. B. Keeler, Carlinville, Ill.	3-8
*Newman & Baker, Norwalk, Huron Co., O.	4-7
*Miller & Hollam, Kewaskum, Wash. Co., Wis.	4-4
*D. A. McCord, Oxford, Butler Co., O.	4-9
*J. T. Wilson, Mortonville, Woodford Co., Ky.	4-4
*Amos Johnson, Sugar Grove, Warren Co., Pa.	5
*S. D. Moore, Atlanta, Ga.	5-10
*Sam'l Greenwalt, Cearfoss, Wash. Co., Md.	5-7
*Amos Johnson, Sugar Grove, Warren Co., Pa.	5-10
*B. B. Barnum, 380 Preston St., Louisville, Ky.	5
*S. W. Salisbury, Kansas City, Mo.	5d
H. S. Elkins, Kennedy, N. Y.	5-10

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.	12-5
F. A. Salisbury, Geddes, Onon. Co., N. Y.	2-6
A. A. Fradenburg, Port Washington, O.	3-7
F. A. Snell, Milledgeville, Carroll Co., Ill.	4-3
H. Scovell Columbus, Cherokee Co., Kans.	4-6
Newman & Baker, Norwalk, Huron Co., O.	5-10
Nichols & Elkins, Kennedy, N. Y.	

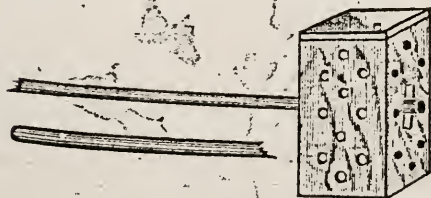
\$1.50 per YEAR; CLUBS of 5 or More \$1.00.

Send Ten Cents for a Sample Copy of

The American Bee Journal

The Oldest, Largest and Best Bee Paper.

THOMAS G. NEWMAN & SON, CHICAGO.



THE NEW SWARMING BOX,

For taking swarms down from trees, or other places where they may chance to cluster.

Price, all complete, with pole, the whole neatly painted, and bound with iron to avoid splitting, 75c; in the flat, 50c; without pole, 10c less. The box can be sent by mail in the flat, for 90c.

A. I. ROOT, Medina, O.

ADVERTISEMENTS.

Advertisements will be received at the rate of 20 cents per line, Nonpareil space, each insertion, cash in advance; and we require that every advertiser satisfies us of responsibility and intention to do all that he agrees, and that his goods are really worth the price asked for them.

THE RIGHT WAY

To start an Apiary is to send for strong, 4 frame Nuclei, in new Hives, all complete, for.....\$5 00
Two Frame Nuclei.....2 50
All queens reared in full colonies from choice Imported Mothers.
HIRAM ROOP,
3ftd. Carson City, Montcalm Co., Mich.

1879.

Headquarters for

Italian Bees & Queens,

Modest & Langstroth Bee Hives,

Honey and Section Boxes,

AND

COMB FOUNDATION FOR THE MILLION.

Our new illustrated price list is now ready for distribution, containing our experience in the use of Comb Foundation, and telling how to use it to best advantage; giving best mode for securing large yields of Comb Honey; telling about Bee Hives, Honey and Section Boxes, Extractors, Smokers, &c.; and containing much other matter of general interest to one and all. Your name and the names of your bee-keeping friends, written on a postal card and sent us, will entitle each of you to receive it by return mail. Write at once; delay is dangerous, and we will try to help you. J. OATMAN & SONS,
2-5d Dundee, Kane Co., Ill.

I HAVE a few tested queens, which I will ship during the month of May, for \$2.75 each. A cage—almost a little hive,—3 1/4 x 5 inches, containing a comb of honey, 3 1/4 x 1 inches, will be used, thus giving sufficient room, and bees enough to insure safety to the queen. A cage for introducing, with directions, will accompany each. Safe arrival guaranteed.
MISS MEROA ANDREWS, Medina, Ohio.

COMB FOUNDATION PRESS

FROM 15 TO 5 DOLLARS.

Fdn. Made on Wire Sewed in Frames.

Owing to our improved machine we are able to sell foundation as follows:

Wired Foundation, per lb.....	55cts
Foundation 10 feet to 1b., per lb.....	55cts
8	50cts

Samples and circular free.

D. S. GIVEN,
Hoopeston, Ills.

METAL Corner Fastenings for the Quinby Hive, at 12 1/4 cts. per set. L. C. AXTELL,
5d Roseville, Warren Co., Ills.

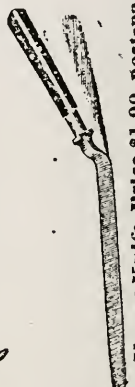
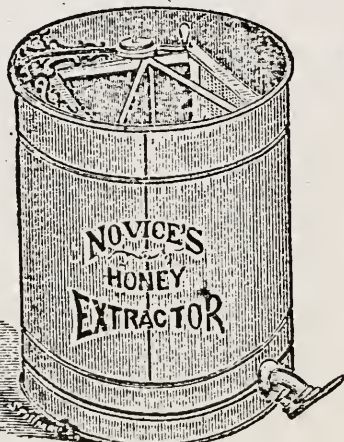
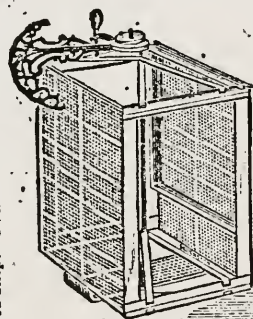
SEND FOR MURPHY'S PRICE LIST

Of Honey Extractor for 1879, the only American extractor that was awarded a Diploma and Medal by the regularly appointed judges at the Centennial Exposition of 1876. Also Section Honey Boxes of all kinds at low rates. Address R. R. MURPHY,
5-6d Garden Plain, Whiteside Co., Ill.

OUR EXTRACTORS ARE ALL NEATLY JAPPANED AND LETTERED.

PRICES OF EXTRACTORS:

For Galvanized, \$9.50; American frame, \$9.75; Admir frame, \$7.00; Langstroth, \$7.00; Quibby, \$8.00. No knife included at these prices. All the above sizes kept constantly on hand ready to ship. OVER 2000 NOW IN USE.



Our Honey Knife, Price \$1.00, post-paid. Is made of fine steel, nicely finished, with a thin, keen edged blade that needs no hot-water or any such "fussing" to make it uncap nicely.

In ordering be sure to give outside dimensions of frame, and length of top bar.

CHEAP HIVES.

SEE OUR ADVERTISEMENT IN GLEANINGS FOR DEC., JAN., FEB., AND MARCH.

CHEAP SECTIONS.

The following prices are for any size up to 6x6.
Plain, Sawed Smooth..... \$1.50 per M
do Sandpapered..... 5 50 "
Dove-tailed, Sawed Smooth..... 5 50 "
do Sandpapered..... 6 50 "
Lewis' Sections (all in one piece), Sandpapered..... 7 50 "
Lewis' Honey Boxes, and Dove-tailed Honey Boxes, very cheap. All excellent material and workmanship. Send for Price List.

LEWIS & PARKS,
WATERTOWN, WIS.

4-5d

SECTIONS \$5.00 PER M.
ALSO HIVES, FRAMES, &C., &C.,
PROPORTIONALLY LOW.

W. T. FALCONER,
JAMESTOWN, CHACT. CO., N. Y.

Before Purchasing

Supplies for your Apiary, send a postal card with your name and (if you will do us the kindness) those of bee-keeping neighbors, for our Illustrated Circular of Apian Supplies, and sample Sectional Box and Comb Foundation, made on the **Dunham Foundation Machine**, which is the latest improvement in that line. We wish to place these samples before **Every Reader** of this Magazine, and hence offer them **Free**. Just send your name at once.
N. H.—We have secured the general agency of the above machine. Special attention given to rearing Italian Queens and Bees. The highest price paid for Beeswax.
J. C. & H. P. SAYLES,
Hartford, Wis.

Cash for Beeswax!

Will pay 25c per lb. for any quantity of nice, clean wax, delivered at our R. R. station.
A. I. ROOT, Medina, Ohio.
So much sent in, can't pay more for the present.

CHEAP SECTIONS.

Prize Boxes, sawed smooth \$1.00 dressed \$5.00 per M
Dove-tailed " " 6x6 4.50 " 5.50 "
" " " 5.00 " 8.00 "
If grooving for holding fdn. is omitted, 25 cts. less.
Every thing we manufacture, very cheap; best of material and workmanship. S. D. BUELL & CO.,
5d Union City, Mich.

BEEES REQUIRE SWEET.

Flowers from July to Sept. **Clethra Alnifolia** blooms late, has the sweetest of White Flowers. It is entirely hardy, grows where corn will; described and illustrated in circular, sent free by mail. Also the Reading Nursery Catalogue of 66 pages describing hundreds of fruit trees and shrubs, with 30 cts illustrating fruits, trees, and flowers. We have 50 varieties of Evergreens 1 to 6 ft. high. Scotch Larch, White Ash, Cuthbert Raspberry, Large and Small Fruits, etc. Address
JACOB W. MANNING, Reading, Mass.

For full description, with engravings, of the **Latest, Simplest, and Best Simplicity** hive ever made, send 8 cts. for the May number of the **Bee Keepers' Exchange**, or only 75 cts. for a full year's subscription. Address **J. H. NELLIS,**
5d Canajoharie, N. Y.

CASH WILL BUY

Section Boxes and Comb Foundation at the lowest prices going. Try me. Special prices on large orders. Satisfaction guaranteed.
Address R. STEELE, Marietta, Wash. Co., O.

Hale's Price List.

Send for my Price List of Colonies, Queens, Nuclei, &c., for 1879.
EARLY QUEENS.
I shall take Especial Pains to raise a large number of Queens to Ship Early in the season.
Wirt C. H., W. Va. Address E. W. HALE.
1-10d

Early Queens.

J. P. H. BROWN, Augusta, Georgia, Importer and breeder of Italian queens, and dealer in Bee-keepers' supplies. Queens bred a month earlier than in the North. Low express rates. Packages of five or more queens sent free of express charges to any part of the United States except California and Oregon.
111d

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Nineteenth Edition Circular and Price List found in Apr. No., Vol. VII., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of postage required.

Canada postage on merchandise is limited to 8 3/4 oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C, Part First.....	\$ 10
	Basswood trees for planting. For prices see Price List.....	
	Balances, spring, for suspended hive (60 lbs.).....	8 00
	Barrels for honey.....	2 50
	" waxed and painted.....	3 50
	Bees, per colony, from \$7 to \$16, for particulars see price list.....	
10	Bee-Hunting box, with printed instructions.....	25
0	Binder, Emerson's, for GLEANINGS.....	50, 60, 75
0	Blocks, iron, for metal cornered frame making.....	15
	One of the above is given free with every 100 frames, or 1000 corners.....	
10	Burlap for covering bees, 40 in. wide, per yd.....	10
	Buzz-Saw, foot-power, complete; circular with cuts free on application. Two saws and two gauges included.....	35 00
0	Buzz-Saws, extra, 85c, to \$3.50. See price list.	
	The above are all filed, and set, and mailed any where.....	
60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included.....	5 00
	The same for 7 and 8 in. saws (not mailable).....	7 00
3	Cages for queens, wood and wire cloth, provisioned. See price list.....	10
30	" " " per doz.....	1 00
20	Candy for bees, can be fed at any season, per lb.....	15
0	Cards, queen registering, per doz.....	06
0	" " " per 100.....	40
60	Chaff cushions for wintering (see Nov. No. for 1877).....	30
9	" " without the chaff.....	15
40	Chaff cushion division boards.....	20
2	Cheese cloth, for strainers, per yard.....	10
10	Clasps for transferring, package of 100.....	25
	Climbers for Bee-Hunting.....	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles.....	1 50
	Comb Foundation Machines complete \$22 to 100 00.....	
20	Corners, metal, per 100.....	50
20	" " top only, per 100.....	60
15	" " bottom, per 100.....	40
	On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.	
	Corners, Machinery complete for making \$250 00.....	
12	Duck, per yd.....	20
15	Enameled cloth, bees seldom bite and propolize it. Per yard, 45 inches wide, 2 1/2. By the piece, (12 yards).....	18
	Extractors, according to size of frame, \$6 50 to 10 00.....	
	" " inside and gearing, including honey-gate.....	5 00
	" " Hoops to go around the top.....	5 00
5	Feeder, Simplicity, (see price list) 1 pint.....	10
7	Feeders, 1 quart, tin.....	10
4	The same, half size.....	05
25	The same, 6 qts, to be used in upper story.....	50
2	Files for small circular rip saws, new and valuable, 20c; per doz. by express.....	2 00
	" The same, large size, double above prices.....	
1	" 3 cornered, for cross-cut saws, 10c; doz.....	1 00
5	Frames with sample Rabbet and Clasps.....	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet).....	20
25	Gates for Extractors tinned for soldering.....	50
0	Gearing for Extractor with supporting arm.....	1 25
0	GLEANINGS, Vol's I and II, each.....	75
0	" " Vol's IV and V, each.....	1 00
0	" " Vol. III, second-hand.....	2 00
0	" " first five neatly bound in one.....	5 00
0	" " " unbound.....	4 00

Hives from 50c to \$6 25; for particulars see price list.....

0	Honey Knives, straight or curved blade.....	1 00
	" " 1/2 doz.....	5 00
	" " 1/2 doz by Express.....	4 75
	Labels for honey, from 25 to 50c per 100; for particulars see price list.....	
	Lamp Nursery, for hatching queen cells as built.....	5 00
0	Larvae, for queen rearing, from June to Sept.....	25
15	Leather for smoker bellows, per side.....	50
0	Lithograph of the Hexagonal Apiary.....	25
0	Magnifying Glass, Pocket.....	50
	" Double lens, brass on three feet.....	75
0	Medley of Bee-Keeper's Photo's, 150 photo's.....	1 00
12	Microscope, Compound, in Mahogany box.....	3 00
0	Prepared objects for above, such as bees' wing, sting, eye, foot, &c., each.....	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard.....	10
10	Opera Glasses for Bee-Hunting.....	5 00
18	Paraffine, for waxing barrels, per lb.....	25
0	Photo of House Apiary and improvements.....	25
60	Pump, Fountain, or Swarm Arrester.....	8 50
0	Queens, 25c to \$6 00. See price list.....	
1	Rabbets, Metal, per foot.....	02
0	Salicylic acid, for foul brood, per oz.....	50
10	Saw Set for Circular Saws.....	75
0	Screw Drivers, all metal (and wrench combined) 4 1/2 inch, 10c; 5 inch, 15c. Very nice for foot-power saws.....	
0	Scissors, for clipping queen's wings.....	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each.....	05
	Section Honey box, a sample with strip of fdn. and printed instructions.....	05
	Section boxes in the flat by the quantity, \$6 00 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive, see price list.....	10
18	Seed, Alsike Clover, raised near us, per lb.....	30
18	" Catnip, good seed, per oz. 10c; per lb.....	1 00
0	" Chinese Mustard, per oz.....	15
18	" Mellilot, or Sweet Clover, per lb.....	35
18	" White Dutch Clover, per lb.....	35
18	" Motherwort, per oz. 20c; per lb.....	2 00
18	" Mignonette, per lb. (20c per oz).....	1 40
	" Simpson Honey Plant, per package.....	05
	" " per oz.....	50
18	" Silver Hull Buckwheat, per lb.....	10
	" " peck, by Express.....	75
18	" Common " per peck.....	50
	" Summer Rape. Sow in June and July, per lb.....	15
	A small package of any of the above seeds will be sent for 5 cents.	
5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions.....	10
	Shipping Cases for 48 section frames of honey.....	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c.....	
1	Slate tablets to hang on hives.....	01
5	Smoker, Quinby's (to Canada 15c extra) 50 & 1.....	1 75
	" Doolittle's, to be held in the mouth.....	25
	" Bingham's..... \$1 00; 1 50; 1 75.....	
25	" OUR OWN, see illustration in price list.....	75
2	Tacks, tinned, per paper, (two sizes).....	05
5	Thermometers.....	40
0	Veils, Bee, with face of Brussels net, (silk).....	75
	The same, all of grenadine (almost as good).....	50
	Veils, material for, Grenadine, much stronger than tarlatan, 21 inches in width, per yard.....	20
	Brussels Net, for face of veil, 29 inches in width, per yard.....	1 50
	Wax Extractor.....	3 50
	Copper bottomed boiler for above.....	1 50
5	Wire cloth, for Extractors, tinned, per square foot.....	10
2	Wire cloth, for queen cages.....	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively.....	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot.....	05

All goods delivered on board the cars here at prices named.
A. I. ROOT, Medina, Ohio.

BOOKS for BEE-KEEPERS and OTHERS.

Any of these books will be forwarded by mail, *post-paid*, on receipt of price.

In buying books, as every thing else, we are liable to disappointment, if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them *for sale*, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage, shall not be disappointed, and therefore, I am going to try to prevent it by mentioning all the faults so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve, I have marked with a *; those I *especially* approve, **; those that are not up to times, †; books that contain but little matter for the price, large type and much space between the lines, ‡; foreign, §.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

A B C of Bee Culture, Part First, Second, Third or Fourth.....	25
A B C of Bee Culture, Parts 1st, 2d, 3d, & 4th in one Vol.....	80
Quincy's New Bee-keeping**.....	1 50
Cook's New Manual**.....	1 25
The same in Paper.....	1 00
Langstroth on the Hive and Honey Bee**.....	\$2 00
Bee-keeper's Text Book* Revised, Muslin.....	1 00
A Manual of Bee-keeping, by John Hunter*.....	1 75
Dzierzon Theory**.....	1 25
How I made \$350 a Year with my Bees*.....	20
"Blessed Bees" ‡ A fascinating book, but it is fiction and not facts. Price.....	25
Putnam's Sons.....	1 00
Honey as Food and Medicine.....	10
Art of Saw-filing*.....	75
Fuller's Grape Cultivist**.....	1 50

MISCELLANEOUS HAND BOOKS.

Ten Acres Enough**.....	1 00
Five Acres too Much**.....	1 50

QUEENS BRED IN MARYLAND

at prices to suit the times. Send for prices. Will spare some three frame nuclei with dollar queens, if ordered now, at \$3 00 each, or six for \$17 00.

5d J. M. C. TAYLOR, Lewistown, Md.

QUEENS!

Untested queens, from imported mothers, during the month of June, for \$1.25 each. A cage—almost a little hive—3x4x5 inches, will be used, thus giving sufficient room, and bees enough to insure safety to the queen. Directions for introducing will accompany each. Safe arrival guaranteed.

MISS MEROA ANDREWS, Medina, Ohio.

Scovell Valve Cut-off Smoker.

Friends, if you want the handsomest and best in the market, send for the "Scovell Smoker." The fire barrel of my smoker is made of heavy tin, and is 2½ in. in diameter. The bellows is hinged at the back, making the strongest and most sensible joint in use. The boards are painted a beautiful vermilion red, and are nicely varnished. It burns all kinds of fuel, and will hold fire for hours. Price, by mail \$1.15. Manufactured by H. SCOVELL, 6-8d Columbus, Cherokee Co., Kansas.

ELECTROTYPES!



One Queen like this, postpaid by mail, 25c.

A. I. ROOT, Medina, O.

Vick's

Illustrated

Monthly

MAGAZINE

32 pages, a Colored Plate in every number and many fine Engravings; price \$1.25 a year; five copies for \$5.00.

Vick's FLORAL GUIDE, 100 pages, one Colored Plate—200 Illustrations. Price only 5 cents.

PUBLISHED BY JAMES VICK, ROCHESTER, N.Y.

16 pp. Illustrations. Circular Sent Free!

With Cook's New Manual of the Apiculture to guide, bee-keeping is made plain and profitable. All valuable bee publications in stock. Subscriptions for Bee Journals solicited at club rates.

EVERETT BROTHERS, 107 Monroe Street, Toledo, O.

Addition to Chas. Dadant & Son's Advertisement.

TESTIMONIALS.

The sample of fdn. is the nicest I have ever seen, taking all points together. D. M. DOOLITTLE, Borodino, N. Y.

Your fdn. received. It is O. K. It looks brightest of them all. Send me 200 lbs. more.

CHAS. F. MUTH, Cincinnati, O.

We have more of similar praises. Send for Circular. CHAS. DADANT & SON, Hamilton, Ill.

COMBINED CIRCULAR AND SCROLL SAW, FOR HIVE, BOX AND FRAME MAKING.

J. S. Woodburn, Newville, Pa., after two years' use, says:

I find myself quite equal to cutting out from 12 to 15 hives per day. Am now engaged on a job of 100 hives, 1000 frames, 5000 sections and 500 broad frames, and expect to accomplish it all on the Combined Circular and Scroll Saw."

The following cut shows a thin board $\frac{1}{4}$ inch thick placed on the table with a rib fastened to it with brads. This rib is of the same width as the cutter and is placed from the cutter the width of the cutter. This rib and board are so easily made that we do not furnish them unless especially ordered. The price of them is 75 cents. If different width cutters are used, a board with corresponding rib can be made for each cutter. This way of making the joints for boxes is largely used by Bee men, Fruit men and many articles of manufacture in different lines of trade.

When ordering cutters for this box-work, please mention for what use they are wanted, besides giving width, and we will send those that are most suitable.

This is a cheap, effective machine, and, with its Attachments, combines all that is wanted by the apiarist to successfully and economically manufacture all his supplies in hives, boxes, frames, etc. Hundreds of bee-keepers are now using them successfully. We will ship them.

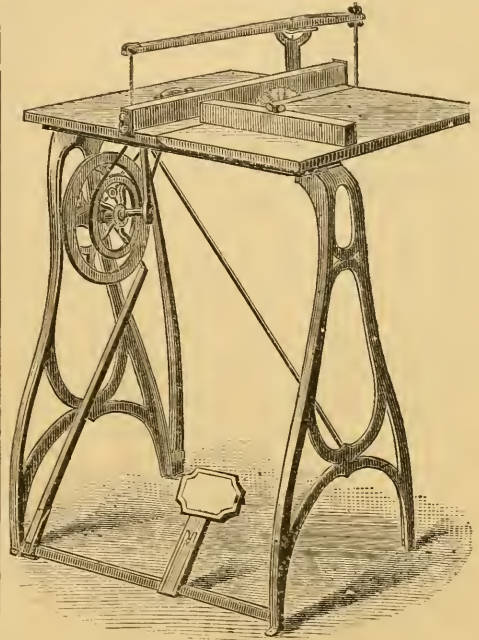
On Trial if Desired.

On receipt of \$5 with the order, we will ship this machine on trial, the balance of the bill we will send to your express agent for collection, with instructions to hold the money until ample time is had to test the machine.

If the machine is not satisfactory, he will return the money when you deliver to him the R. R. receipt, showing reshipment, with no back charges. We will then return all of the \$5.00 not used to pay freight and collection charges.

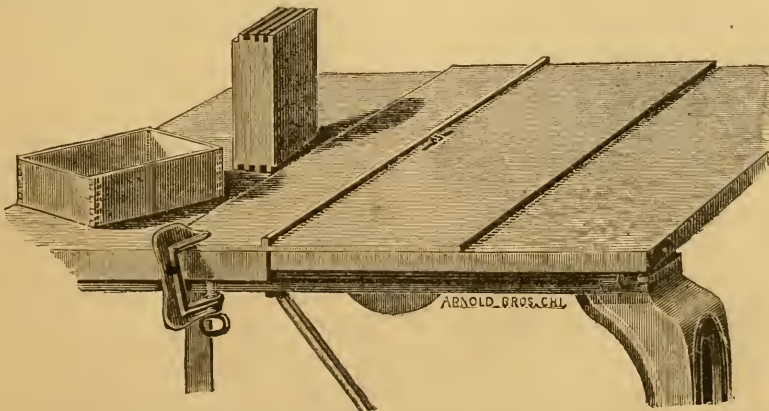
Strangers to us and our machines, ordering on these conditions, can by risking a small amount, secure to themselves the privilege of returning the machine should it not merit their approval.

By trial we do not mean simply an examination at the freight or express office, but you may take the Machine to the workshop and test it fully.



Above cut shows the Combined Circular and Scroll Saw. The cut below shows table arranged for box and frame work.

Price of the Circular and Scroll Saws combined	\$40.00
" Boards with gauges for frame and box work	.75
" Cutter Heads, each	1.50
" Circular Saw without Scroll Saw Attachment	35.00



Showing the Combined Machine, Arranged with a Cutter Head for Making Tongue and Groove Joints for Boxes, Drawers, Frames, Etc., Etc.

Address

W. F. & JOHN BARNES,

ROCKFORD, WINNEBAGO CO., ILLINOIS.

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Names of responsible parties will be inserted in either of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per year.

\$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent before July 1st. If wanted sooner, see rates in price list.

*E. W. Hale, Wirt C. H. W. Va.	1-12
*A. I. Root, Medina, Ohio.	
*H. H. Brown, Light Street, Columbia Co., Pa.	7-9
*E. M. Hayhurst, Kansas City, Mo.	1-12
*J. M. C. Taylor, Lewiston, Fred. Co., Md.	1-6
*Paul L. Viallon, Bayou Goula, La.	8td
*R. Stehle, Marietta, O.	1-6
*J. Oatman & Sons, Dundee, Kane Co., Ill.	2-1
*J. E. Walcher, Millersville, Christian Co., Ill.	3-8
*S. M. Hitchcock & Co., Warthen, Wash. Co., Ga.	3-8
*J. B. Keeler, Carlisle, Ill.	3-8
*Newman & Baker, Norwalk, Huron Co., O.	4-7
Miller & Hollam, Kewaskum, Wash. Co., Wis.	4-4
*D. A. McCord, Oxford, Butler Co., O.	4-9
*J. T. Wilson, Mortonville, Woodford Co. Ky	4-4
*S. D. Moore, Atlanta, Ga.	5-10
Sam'l Greenawalt, Cearfoss, Wash. Co., Md.	5-7
*Amos Johnson, Sugar Grove, Warren Co., Pa.	5-10
H. S. Elkins, Kennedy, N. Y.	5-10
J. Mattoon, Atwater, Portage Co., O.	6-7d
*F. L. Wright, Plainfield, Livingston Co., Mich.	6-8d
*King & White, New London, Huron Co., O.	6

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.	
A. A. Fradenburg, Port Washington, O.	2-6
F. A. Snell, Milledgeville, Carroll Co., Ill.	3-7
H. Seovell Columbus, Cherokee Co., Kans.	4-3
Newman & Baker, Norwalk, Huron Co., O.	4-6
Nichols & Elkins, Kennedy, N. Y.	5-10

Bees For Sale.**ONE DOLLAR PER LB.**

Names inserted in this department the first time without charge; afterward, 20c each insertion, or \$2.00 per year.

Those whose names appear below signify that they are willing to furnish bees, without hives, during the coming month, at \$1.00 per lb., the purchaser being required to bear all express charges. Safe arrival guaranteed.

[Express Cos. have promised to return cages to owners free of charge, if made very light.—Ed.]

A W Vaniman, Virden, Macoupen Co, Ill	6
F L Wright, Plainfield, Livingston Co, Mich	6
E A Gastman, Decatur, Macon Co, Ill.	6
C H Goodell, Royalston, Worcester Co, Mass	6
G D Adair, Talbotton, Talbot Co, Ga	6
F J Farr, Independence, Jackson Co, Mo	6
W V Gates, Bartlett, Shelby Co, Tenn	6
I S Hughes, Mt Zion, Macon Co, Ill	6
S A Dyke, Woodyard, Athens Co, O	6
L W Vankirk, Washington, Wash Co, Pa	6
J E Vanmeter, Edmon, Knox Co, Ind	6
S Y Orr, Morning Sun, Louisa Co, Ia	6

CLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VII.

JUNE 1, 1879.

No. 6.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.

Established in 1873.

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SCRAPS AND SKETCHES. NO. 6.

QUEEN REARING.

A FRAME filled with fdn. is hung in the hive containing my imported queen, and when I find the cells drawn out and filled with eggs (usually in about 3 days), I remove the frame, cut a few small holes in the comb, hang it in the centre of an empty hive, and fill up the hive with empty comb, putting in perhaps a frame or two of honey and pollen. A strong colony is removed to a new location, and the hive containing the eggs put in its place. To furnish the new swarm with young bees, the bees from 2 or 3 brood frames of the removed colony are shaken in front of it; and to prevent getting the queen back at the old stand, she is hunted up before the "shaking" operation is commenced. Around each hole cut in the comb the bees usually build 3 or 4 queen cells (I have had 33 queen cells built on one comb), and when they are sealed over, the comb is hung in the lamp nursery, and another filled with eggs put in its place.

When a frame of eggs from the imported queen is taken from the hive, it is always replaced with a frame of fdn. The hive is opened every day, and when a comb is found filled with eggs, the date when they will hatch into queens is marked upon the top of the frame. One colony builds cells enough to supply constantly, 25 nuclei. After a swarm has built 5 or 6 "batches" of cells, however, it gets "tired" and does not build so many; then I generally give it a laying queen, and turn the queen cell business over to a fresh colony.

My experience with the lamp nursery, and introducing virgin queens, is so exactly like that given in the A B C, that I will not repeat it.

Instead of making small nucleus hives, I use full sized Simplicities, putting two nuclei in one hive. Of course, the nuclei are placed at opposite sides of the hive, and have their entrances at diagonally opposite corners. For division boards, I use the same chaff cushions that are used to pack the bees in winter. The nucleus hives are pretty well scattered around the yard, and over one entrance to each hive, is tacked a piece of bright colored paper; I used this method last season, and lost but few queens.

For stands upon which to set the hives, I use boards a little larger than the bottom of a hive, with cleats nailed under each end to keep them from warping and to raise them a little from the ground. The hives are turned around until the opposite corners project beyond the edge of the bottom

board enough to make entrances. For an alighting board, or "door-step," a small piece of board is nailed to the edge of the bottom board, $\frac{3}{8}$ of an inch below each entrance.

I find that queen rearing, like ordinary bee-keeping, cannot be learned entirely from books; it requires practice. W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

I heartily concur in your directions in the main, friend H. Your plan of getting two entrances to a Simplicity hive, without any cutting or boring holes in it is quite ingenious. We should be very careful that the division boards are bee tight when having two colonies in one hive, for many mishaps and disappointments have resulted from the bees getting through a crack in the bottom board, or from the division board's not fitting quite as it should.

WINTERING.

SAWDUST AS GOOD AS CHAFF.

IN 1872, having 30 colonies of bees, I constructed a house to winter them in, with double walls 18 in. apart, filled in all around with green sawdust. I weighed each hive when I placed it in this house, and again, at the end of 102 days, when I took it out. The greatest consumption of honey by any one colony was 13 lbs.; least consumption 2 lbs.; average, 8 $\frac{1}{2}$ lbs. When I had completed the weighing in the spring, and found an abundance of live bees and but very few dead ones in the hives, I was ready to run into the street and shout *euricka*. But, alas! the next winter frost crept into my model bee-house, dysentery made its appearance, and some colonies perished. The third winter more frost crept in, more dysentery, more dead colonies. Spring dwindling set in, and my apiary was soon reduced to one colony. Disgusted with bee-keeping, I sold my extractor, disposed of my hives, melted the combs into wax, and was prepared to retire from the business; but, when fall came, feeling sorry for that poor lonely colony, for I thought death surely awaited it, I decided to try another experiment in wintering. I procured a large goods box, put the hive inside of it, fixed an outlet for the bees, took the top off the hive, spread some burlaps over the frames, and filled the goods box with dry, seasoned sawdust, so that there were about 8 in. of sawdust all around, and 12 in. on top of the hive. The bees were allowed to go out whenever they pleased, and were left in this box till May. When I removed the colony from its win-

ter quarters, it was very populous and in a splendid condition in every respect. The next fall, I had 4 colonies, which I wintered in the same way, with the same success; the next fall, 11; the next, 18. After four winter's experience, I am satisfied that this plan is a success. I have lost but one colony since I adopted this plan of wintering, and that had moldy combs, and was in a very bad condition when put into winter quarters. I have never been able to detect any moisture about the sawdust at any time, and I should be slow in exchanging it for any other material. By leaving the bees in their winter covering till warm weather has fairly set in, brood rearing is not checked by cold suaps. If I wish to examine a colony in early spring, I remove the sawdust from the top of the hive, and in its place use a thick sawdust cushion. Boxes with movable tops and no bottoms are preferable. Chaff may be just as good as sawdust, but I cannot conceive how it can be any better in any respect.

JOHN S. DEWEY.

Spring Lake, Mich., Apr. 25, 1873.

So many have reported succeeding excellently with saw dust in place of chaff, that I think we shall have to consider it good, even if it is not quite as good as chaff. One objection I have had to it is that it is ordinarily rather heavier than chaff to handle, especially, when made into cushions. In its favor, we can say that it lies in place better than the chaff, and is doubtless a closer protection on that account. At first, I feared it would not absorb moisture as well as the chaff, but reports seem to indicate that it keeps dry, and dries out when wet accidentally, quite as well as the chaff does. If possible, I think the saw dust should completely surround the cluster, without any sticks or lumber running through it, along which the frost might make its way.

FROM TEXAS.

TIGHT FITTING SECTIONS.

OUR bees are doing finely, at present. We have had a nice rain, the bees are getting honey, and swarming has commenced. Our 1000 sections are half inhabited by the bees, and they are filling them fast. We have but one objection to the sections; they are too hard to put together. We have to drive them with a mallet and then they splinter and burst considerably.

NEW SWARMS ON FDN.

The first big swarm, we hived on fdn.; one sheet pulled in two, one third the way from the top bar, and fell down. All the balance has worked nicely so far.

SWARMS ALIGHTING ON THE SAME SPOT.

In your "lecture" in GLEANINGS, last month, about bees settling on the same spot where bees have clustered before, you attribute the fact to the scent of the queen, which you say clings to the spot for weeks; but according to my experience this can not always be the cause. The first swarm we had this spring came out and clustered on one of our bee bobs, and they had no queen with them; she was a clipped queen, and I had her in my hand. She never touched the bob, but every swarm that has clustered since has chosen the very same spot. I think they will no more settle after the scent of a queen that is not their own, than they will after the scent of a worker. It is a little like this; if you are

moving along the highway, and find a good camping place where some one has camped maybe weeks before, you will generally camp on the same spot, even though it is not nearly night, and the bees do the same way. If any scent causes them to choose the same spot, it is the sweet smell of the whole swarm calling their companions while they are settling.

Lancaster, Tex., May 1st, '79. E. J. ATCHLEY.

Now, friend A., those close fitting sections are like a great many other things; when we made them loose, a great many complained that they were not strong enough, and said they wanted them to drive together; now it transpires that others were exactly pleased with them as they were at first. The same is true of the fdn.; a good many wanted 8 or 10 sheets to the fb., but when we made them so thin, we were very soon told that the old kind, 5 or 6 sheets to the fb., was just right because the thin broke down as yours did. I try to please you all, but when I do not succeed, please be lenient, dear friends, and remember how differently we think about many of these things.

Thanks for your report in regard to swarming; very likely you are right, but I confess I can hardly see how the bees should pick out a particular limb on a particular tree, just after a hard storm, simply because some swarm had rested there a week ago.

MISSOURI VALLEY BEE-KEEPERS' CONVENTION.

PURSUANT to adjournment, a large number of members of the convention and persons interested in bee culture assembled at the Court House in Kansas City, Mo., on the 2d. inst., and were called to order at 10 o'clock, A. M., by the president, J. D. Meador. The minutes of the previous meeting, of April 5th, were read and approved.

REPORTS.

J. D. Meador went into winter quarters with 215 colonies, had reported 175 colonies at last meeting, but now has to correct his report, and say that he has not to exceed 100 good colonies in his apiary, some having dwindled to such an extent that he was forced to unite 3 or 4 into one, or lose them entirely, while others had swarmed out and either united with other colonies or left. All had plenty of honey, and most of them brood; still they had dwindled and perished, or left. He had wintered them on summer stands, but thought them sufficiently protected. Some had dysentery, others not; while many that he had thought strong, with abundant stores, had perished outright. He was undecided as to the true cause of the unprecedented mortality, but attributed it partly to his own neglect.

P. Baldwin went into winter quarters with 140 stands, and had not lost a single colony. Some of them to-day are lying out in front of hive, as if preparing to swarm. He wintered them in cellar, but placed them on their summer stands Jan. 25th. His bees had good fall range of Spanish needle, and kept up supply of brood till nearly winter. Not to exceed a pint of bees per hive had to be removed from his bottom boards, and these were evidently old bees. Has no chaff hives.

W. P. Hogarty of Wyandotte Co., Kas., went into winter quarters with upwards of 100 colonies, and has lost $\frac{3}{4}$ of them. He uses the chaff hive, having 100 of them, but wants no more. His bees have suf-

fered with dysentery, and great mortality has afflicted them without regard to age, color, or previous condition. Abundance of food, strong colonies, chaff hives, and unremitting care enabled him to report at this time only something like $\frac{1}{2}$ the number of colonies that he had last autumn, and these only in tolerable condition. His bees had fed largely on dark honey, but several that had only white honey for winter had perished also. The cold and backward spring had added to his misfortunes, so that many which had survived the hardest frosts had fallen by the wayside. Added to this was the disposition of good colonies to swarm out, and either leave for parts unknown or unite with other colonies. Probably half a dozen had done thus, while a much larger number had apparently first suffered their brood to perish, and then died themselves. His neighbors, as far as he could learn, had done no better, and cannot be said to have fared much worse. All alike have suffered greatly, probably to the extent of one half the bees in the country.

J. D. Gregg had lost over half his colonies, all his small stocks without exception, and some of his best. He had scarcely 20 alive at this time, out of nearly 50 last autumn. Very few had frozen, although he wintered on summer stands, with packing above the frames. They invariably left plenty of stores and sometimes brood. Spring dwindling and swarming out had left a large number of hives vacant. He had considerable acquaintance with small bee keepers. Those persons who, as usual, had paid but little attention to their bees, have lost in many cases all their colonies. One man had 70 last fall, and now has but 8. Another had 26 and now has but 3. All attribute their losses to the intense cold weather of winter, followed and aggravated by a cold and backward spring. Up to this time, bees have not been able to collect one particle of honey, and only very little pollen.

E. M. Hayhurst went into winter quarters with 90 strong colonies, protected on their summer stands with burlap and chaff cushions. He had lost a great many bees, but had united those colonies which had suffered the most, and now had 60 stocks in good condition. He had fed them considerably to stimulate brood raising, and already had 40 young queens in nuclei. The late cold weather, however, had caused his bees to kill their drones, and he can't say when the young queens will become fertilized. Does not attribute the great mortality to the dark honey, but rather to the fact that brood rearing ceased so early last fall as to suffer but few young bees to go into winter quarters. Dysentery, which, he thinks, was brought on by the intense cold weather, also destroyed many bees.

S. W. Salisbury went into winter quarters with 71 colonies, 12 of which were nuclei with young queens. Had fed his bees in the fall 80 lb. of grape sugar, dissolved in water and mixed with an equal quantity of honey. Had fed from Root's Simplicity feeder in super of the hives, until his poorest stocks showed at least 20 lb. of food each, for winter use. Had wintered on summer stands, with frames removed from the super, and super filled with fine hay after top of brood frames had been carefully covered with a piece of carpeting.

Had lost none with dysentery, and but 3 had frozen or died in the winter. An unusual quantity of dead bees, however, covered the bottom boards of every hive, and the cold and backward spring seems to have favored their mortality. He was forced to

unite weak stocks, sometimes placing 3 colonies together in order to save the remnants. Swarming out had also been a cause of loss, no less than 5 of his stocks having disappeared in this manner. He now has but 52 colonies in good condition. Those colonies to which he fed the grape sugar have been the greatest sufferers, but they were also the weakest to start with. Some of his strongest colonies, however, are among those that have disappeared. He attributes the great mortality to several causes combined: 1st, want of late forage and consequent stoppage of the queen's labor at an earlier period than usual; 2d, unusual severity of the winter, so long continued as to actually freeze that part of a colony least protected, while it caused disease to others; 3rd, to the very unfavorable spring, often chilling and sometimes killing the brood, and otherwise apparently discouraging the bees or causing them to swarm out and leave.

S. W. SALISBURY.

Kansas City, Mo., May 5, 1879.

The above, although lengthy, is an excellent summing up of our wintering troubles, and gives, perhaps, as far as it is possible, the causes of these wintering losses. While chaff hives cannot of themselves be considered a complete remedy, I am satisfied they go a great way towards helping the matter. I think we need to look out for all the points mentioned—plenty of young bees, a good colony, plenty of good food, and a chaff hive, or something equivalent. With such a winter and spring as the one just past, a house apiary is certainly ahead of a chaff hive.

The "Growlery."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

THE hive and other articles which you sent us came all right except the pound of fdn., which we do not find, but it was mentioned in your statement. If you conclude to forward it, send by freight to Bridgeport, our nearest R. R. depot. Plattsville, Conn., Apr. 21, '79. E. N. TAYLOR.

The above letter was carried to the clerk who put up the hive, but he positively declared he *did* put in the fdn. I remonstrated, and told him the man who received them would certainly know if it were there, and that, if not there, the evidence was plain that he left it out. He stoutly insisted that it was there, and concluded by declaring that he had not the faith in humanity, that I had.

"Why B., do you think the man would say there was none just for the sake of getting an extra lb. of fdn.?"

He thought he did, for why should not the fdn. be there when he knew he put it in the hive. Now I will tell you what I think of it, and I have in these years had a deal of experience with humanity. I do not believe I ever had a customer, and I often have a hundred in a day, who would write back that some particular in their bill was missing, just for the sake of getting another for nothing. I do not believe there is one so

unkind and unjust as to wish myself or the clerks to give them the thing, and be at the trouble and expense to pay express charges, etc. I have no doubt but that there are dishonest ones among us, but the way in which a man writes a letter shows pretty clearly what kind of a man he is. The man who wrote the letter at the head of this is certainly honest. He may be careless, or thoughtless, or stubborn, or set in his own way, possibly awkward, at times, like myself, but he never will want anything without paying for it. That was my decision on reading over the letter. After a while came the following.

The pound of fdn. from you, through the P. O., came all right. On opening the package, we found we had one just like it, which came with the hive complete. This mistake of ours happened from our ignorance; we supposed the former to be a *chaff division board*, and had not opened it. To rectify this, we send 80c in stamps to pay for fdn. and postage. If you had labeled it fdn., we should not have made the mistake. E. N. TAYLOR.
Plattsville, Conn., May 6, 1879.

Was my faith in humanity a mistake? Did I not read the man aright? And is it not the better way by far, to exercise charity toward all our fellows, even to those we think are the erring ones? Think gently of the offender, my friend, before you accuse harshly. Remember how many things in this world have turned out to be mistakes, and not intentional fraud. This is a great lesson for us all to learn. I fear the clerks will take courage from this and other similar cases, to decide they are never at fault, and so leave me to pay all differences between customers and ourselves. A man sent by the mail carrier for some goods. When the goods were received, some end bars were missing, and the clerk who put them up, although protesting that he put them all in, sent some more, and paid the postage on them out of his own pocket. Months afterward, a man told us he found a bundle of "such things" in the road. The mail carrier had lost them out. I do not wish to excuse myself, for I am willing to pay damages, even when I am not to blame, for the sake of peace and good will. I have done it in the years past, and God will help me to do it in the years to come; it is not so very hard to pay other peoples debts after all, when you know God is with you in the matter, and by and by, back it comes, when you least expect it, like the 80c above. "Cast thy bread upon the waters."

MORAL:—When you complain, do it gently; remember who is above looking on.

Box Hive Department.

IT is so long since we have had a letter suitable for this department that I came pretty near forgetting we had ever had such a one, but here comes one that does pretty well.

A BOX HIVE BEE-KEEPER WHO USES FDN.

I wintered 76 swarms in my cellar. The last day of Nov., they were just set 3 deep, into a small room, perfectly dark, with a cement bottom, and walls and ceiling plastered, where they remained undisturbed until the last day of March, when all came

out in fine shape. I have wintered my bees in that room for 4 winters, and have never lost a swarm that could be expected to winter any where. Two very light ones starved a year ago the past winter.

I use mostly the box hive, made nicely and painted, having 10 one inch holes in the top. I fasten strips of fdn. in the tops of my box hives, $\frac{3}{4}$ of an in. wide, and across the whole top. I never feed my bees, except to give the light swarms some boxes partly filled, as they were left the fall before.

In the summer of 1876, I hived a swarm of black bees (I have no others), the 15th of June, in an empty box hive, and put on caps at once, and set them under an apple tree. I took off from that hive 126 lbs. of comb honey, and the hive was filled to the bottom so that they were a good strong swarm to winter, and they are working finely this day. I sold my honey that year for 20 cts. per pound. How is that "for high?" I have hived, the last 2 years, 98 swarms, and never lost a swarm by their running away. I have 22 frame hives, but I use them just as I do box hives, never taking out a frame or meddling with them, only to get off all the cap honey I can. Last year I had 40 swarms, and sold 1812 lbs. cap honey. I have kept bees 40 years.

C. A. CARPENTER.

Pontiac, Mich., April 26, 1879.

SELLING BEES FOR A DOLLAR A POUND.

AT present writing, two lots of bees have been sent us. One came from Nebraska, but our friend thought it was too much trouble to put in the bottle of water, and so he sent only a good sized cake of candy. Nearly all of the poor fellows died of thirst, after having honey-combed the candy, in the effort to extract what little moisture it contained. I gave them some water, and it was refreshing indeed, to see the survivors drink. Our friend, Viallon, sent the next lot. Here is what he says about it.

I send you this day, by express, one box of bees, according to your suggestion in May No. of GLEANINGS. If this box reaches you with the bees in good condition, I will send you some more, and as many as any one else may want. The box with the candy, frame of honey, water, etc., before putting in the bees, weighed 13 lbs., and with the bees, 19½ lbs., making it contain 6½ lbs. bees, net. If the bees arrive alive, you will please weigh the box after taking the bees out, and let me know, so that I can tell what amount of food 6½ lbs. of bees consumed in so many days. Of course you will let me know what day they were received. If it is a success you may publish my name in your new department. I did not put in any queen this time, as I wanted to see what would be the result, but next time I will.

I think your price for queens is rather low; you should pay \$1. in May, and 90c. in June, then you may have some to send you queens, but I see that you have not received any yet. I think the reason is, that you offer too little, and not that queen raising has been unsuccessful in the South. As for my part, I have succeeded as well as ever except since 8 or 10 days, as it is raining, etc., and so far have shipped over 200 queens.

I make a candy for queen cages, which, I think, is better than yours, as it keeps soft, and don't melt like the candy made with honey and sugar. I take 1lb. pulverized crushed sugar, $\frac{1}{2}$ lb. La. brown sugar, a table-spoonful of honey, and 1 table-spoonful of flour, and proceed as you direct for your candy. I have had no report of dead queens sent with this candy, while I have lost two tested queens sent out in your last cages with the bottle.

Please report any defect, and any improvement that may be made, in the box I ship you the bees in.

P. L. VIALLOX.

Bayou Goula, La., May 8, 1879.

I took the poor bees from the train myself, and they were nearly all dead. The comb put in his very neat shipping box, was entirely empty, the candy was partially eaten out, and was covered so densely with dead bees, that the survivors could not get at it, and the water bottle, that most important part, contained, I should think, all the water he put in from the start. A wick had been put through a hole in the cork, which had expanded so as to close the hole. Had the comb contained honey enough, I presume we should have had no trouble. Perhaps we would better rely on honey, until we can invent some surer way of supplying water. The notch in the cork seems to answer best for a few bees, but then there is danger if it is either a little too large or too small.

CAGES FOR SENDING OUT QUEENS.

One of our Medina bee-keepers, after deciding that, since queens must be sent by express, we might just as well give them a little more room and more bees, ordered some cages or, perhaps, nucleus hives made. The dimensions are 3x4x5, and the frame 3½, by 4 inches. The first three that were sent out, elicited the following postal cards.

Received the queen on Saturday in very fine condition, not a bee dead. You certainly deserve credit for putting them up so nicely, and they should go a long distance safely. J. MATTOON.

Atwater, Ohio, May 12, 1879.

The queen arrived safely, and apparently all right, this morning. Capped stores in about 4-5 of one side of comb, yet remaining. No dead bees.

D. C. SPENCER.

P. S.—Apr. 29. Introduced all right. Charges 50c. Too much.

Augusta, Wis., Apr. 28, '79.

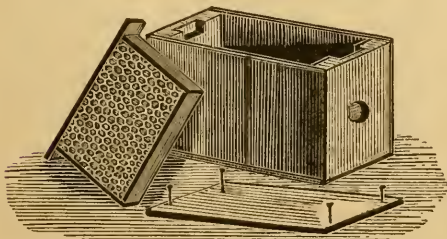
D. C. S.

The queen which you sent me, arrived in due time, and in good condition. I believe there was not a single dead bee in the cage.

A. C. PEAVEY.

Epsworth, Iowa, May 5, 1879.

Below is a drawing of the little hive and the remarks of the originator in regard to it.



ANOTHER SHIPPING CAGE FOR QUEENS.

This cage, so far as reported, has carried without loss of even a single bee. To prepare for shipping, the comb on which the queen is found may be removed from the hive, the little cage frame placed crosswise in the space left, and the frames covered with the cushion or mat for a short time. All the bees needed to accompany the queen will gather on the little frame without the trouble of picking them

from other combs.

The frame can be carefully placed in the cage, the queen dropped in, and they are all ready for ever so long a journey.

The cage would of course require too much postage (at the present price of queens) to be used for mailing, but I do not feel quite certain that (were it not for bee-keepers who live far from express offices) government did not do a *good* rather than bad thing, when it prohibited the sending of queens by mail, though from partially mistaken reasons.

After seeing the number of queens and bees that came through smothered and starved, it almost seemed to me that some one ought to interfere, to prevent cruelty to insects, as well as cruelty to animals. After being kept in a state of ceaseless activity for so long a time in the little crowded mailing cage, is it any wonder they die? With the larger cage, we can give them plenty of sealed honey, and still have empty cells left in which the little fellows may "sit down and rest," if so disposed. We usually find most of the inhabitants of the hive stirring, particularly if we stir them a little roughly, but did you never notice, on taking out a frame, how nicely some of them seem folded away in their cells, quiet enough to be asleep?

Every bee keeper who uses sections has, in the fall, more or less partially filled ones. These answer nicely for the small shipping frame, and the comb may be fastened securely by tying with fine wire, as we would tie a package.

The plan is the same used by Italian exporters of queens.

MISS M. ANDREWS.

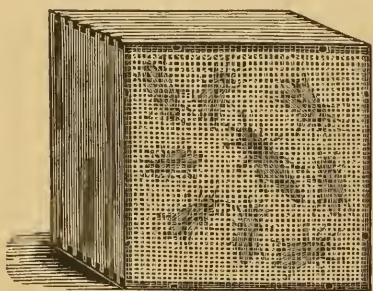
Medina, Ohio, May 15, 1879.

Quite a number of the queens we send out, in fact, it seems to me, by far too many, have been reported stubborn about laying. A few of the imported queens would not lay at all, after shipment, although they laid nicely in our own apiary. Well, a little hive like this, would almost give them room to lay eggs on the way, if they felt so disposed. The only objection, then, is the expense. True, we can make the little hives for 10c each, or \$1.00 per dozen, like the other queen cages, but how about the piece of comb containing, perhaps, 2 oz. of honey, and the additional number of bees to go with the queen. A hundred bees are worth about 3 cents you know, and when one sells a queen for a dollar, or less even, at wholesale, every cent must be counted. Again, if one wanted to send me 20 or more queens in a package, as they often do, it makes an additional charge, for so great a bulk. Some more "walking around the stairway" had to be done. One thing is certain, we can not afford to run any risks of losing queens, for a few cents extra in bees, honey, or express charges. I would rather do business and not make a cent, than to have to keep up a *Growlery* and *Blasted Hopes* correspondence the year around.

Cutting combs to get proper pieces to go into these little frames is quite an expense, and while thinking about this and other points, it occurred to me to use a simple section box, and have the bees build the combs right in them just as we want them. The idea is already put in practice, and we are now sending queens out in section boxes, with a sheet of wire cloth tacked over each

side. Old, tough combs are fastened in the sections with thorns, as spoken of in transferring. Our customer, when he gets his package, can see the queen without any trouble, for she must be on one side of the comb or the other, and if she is a fine queen, she will advertise your business all along the route, for who does not like to take a look at a nice queen bee. To introduce her, simply spread the combs, and place the cage (supported by a similar section under it, or something of a like nature), right in the centre of the brood nest, where all the bees in the colony can make her acquaintance while she promenades on her own comb, where they can not get hold of her legs and wings, and pull them off, as they often do.

To get your cages filled with combs and honey, just have a hive filled with frames of sections containing fdn. clear to the bottoms of each. To have the new combs strong, so they can not break out in shipping, run wires across, or use the new fdn. made on paper. The sections, for convenience, may have both tops and bottoms closed, and the bees may have access, by separating the broad frames a trifle. These combs being built in the brood chamber, will probably be the thickness of usual worker comb, and, if the queen should lay in them, all the better. I do not know but we might have queen cells built in them, and use them for queen cell nurseries. The cell and all can be changed from hive to hive, without any cutting of combs, and when we send off a queen in one, our customer can remove the wire cloth, and slip it into some of his frames, so we shall have no useless queen cages lying scattered about the apiary, but all will be utilized. I do not know but we had a couple of bushels of second hand queen cages lying about last year. If any of the sections should be filled with nice white honey, they can be used for the table. After a section has been a long time in the brood chamber, it may not be a neat looking package to ship a queen in, but we can fix this very quickly. Have a neat long label of some nice paper, and, after your queen is in, wire cloth put on, etc., just paste this label right around the section. A blank place will, of course, be left to put on the address nicely. I will have our engraver show you one of these nice section box queen cages ready for shipment.



SECTION BOX QUEEN CAGE READY FOR SHIPMENT.

Here is a friend that wants bees at a dollar a pound.

I will take 10 quarts or 10 lbs. of bees, as per your schedule, if delivered before the 15th of June, next. The bees must be packed according to your schedule in May GLEANINGS, express charges paid, and safe delivery guaranteed to Brighton (express office). A young Italian queen, that has commenced to lay, may accompany each lb., if you choose, and I will pay \$1.00 each for the queens.

Brighton, Mich., May 12, '79. C. THOMSON.

May 17th.—Several more packages of bees have been received; most of them in excellent condition. One of the shippers sends us two packages, with the following note:

I will sell 1000 lbs. of bees at one dollar per lb. New Madrid, Mo., May 16, '79. T. C. MARSH.

The bees were put in a square box, with wire cloth on two sides. They were provisioned with sugar in a tin box, with a bottle of water over it. The mouth of the bottle was submerged in a little tin cup, like the cover to a tea-canister. Although both boxes were put up exactly alike, one box full had eaten almost none of the sugar, and had all starved but $\frac{1}{4}$ of a lb., while the other was in a most beautiful condition, having drank all of their bottle of water, and eaten perhaps a lb. or more of sugar. They had barely a table-spoonful left. The live bees weighed just 9 lbs. Express charges were \$1.80. If friend Marsh can make them all do as well as this lot, it will be a success. As there were 3 queens in the lot, 2 of them caged, I infer he took 3 swarms to get his 9 lbs.

These were black bees, which is all right, as I made no distinction in my offer. While the Italians are busy gathering honey, these black scamps are trying to rob every hive in the apiary. I wonder if some of the friends did not pick out their most quarrelsome bees to send me, just to get rid of them? If they did, it is all right, but after this month, I think I shall have to say 50c. per lb. for black bees, and 75c. for Italians. If you can send me the bees on combs in metal cornered L. frames, I will pay additional for all the combs and brood are worth.

May 24th.—There! that is just as I expected! Friend Hayhurst has beaten us all, and has capped the climax to my invention of sending bees without hives or combs. Hear him.

I hand you to-day, per express, charges paid, a one dollar queen and $\frac{1}{2}$ lb. of bees, for the purpose of testing your new basket. If received in good order, please accept, &c. I enclose an advertisement to take the place of the other one in case the basket of bees reaches you in good condition.

I am inclined to think this method of shipping bees is going to solve the problem. I have had so much trouble in shipping nuclei, that I had discontinued that part of the business. I put $\frac{1}{2}$ oz. of water, and $\frac{1}{4}$ lb. of candy in the basket, and would be glad to know if this was ample for the trip.

E. M. HAYHURST.

Kansas City, Mo., May 19, 1879.

The package came by express, without the loss of a single bee. The $\frac{1}{2}$ lb. of beautiful young Italians almost filled the dish cover, which was precisely like the one illustrated last month. The bottle had a notch cut in the cork, through which passed a string of

candle wicking *loosely*. Every drop of water was used, and nearly the $\frac{1}{2}$ lb. of candy, although they were on the trip but $2\frac{1}{2}$ days. What makes your bees eat so much, friend H.? According to this, 1 lb. of bees, *on a journey*, will need a lb. of sugar and a half pint of water, for 5 days. The package, bees and all, weighed only $1\frac{1}{4}$ lbs. A brood comb was taken from one of our hives, the bees all shaken off, one empty comb put with it, a division board put on each side, the bees in the cage shaken on, and we had a swarm that went out after pollen the next morning, and the queen began laying immediately. No introducing, no waiting, no transferring, and no risk to run, and we have a pretty little nucleus on our own frames, ready to give us eggs for queen rearing, at once. The dish cover holds about 3 pints, and the $\frac{1}{2}$ lb. of bees seemed nearly to fill it.

Young bees are certainly worth more than old ones. How shall we get them in the cages? Shake them in a newspaper, laid in the scoop of your scales, until they weigh a half lb. The old bees will take wing, and we shall thus have all young bees. Then shake them into a heap, and put them in the cage. Now our section box queen cage can be used nicely for sending the $\frac{1}{2}$ lb. of bees with the queen, and I think it will be the cheapest package we can get. A section box holds just a pint, and two of them fastened together (possibly 3) will make a very neat shipping package. I, too, will agree to send $\frac{1}{2}$ lb. of young Italians, with any queen, for \$1.00 additional. Perhaps next month we can do it cheaper. If any body else can do it cheaper, let them send in their names for next month's issue.

PROBLEM.—If 1 lb. of bees consume 1 lb. of sugar in 5 days, how long will a lb. of honey last them under the same conditions? I will pay \$5.00 to the one who sends in the best practical solution of this question, by actual experiment.

TRANSFERRING.

THE EXPERIENCE OF AN A B C SCHOLAR.

I WANT you to understand that I am a very young A B C scholar, never owning a bee, or daring to go within "stinging distance" of them until last fall. I then bought 9 stands in some kind of a patent hive, I don't know what it was, and put them into winter quarters by packing them all in straw. As the weather has been very cold this spring and the season backward, I let them remain in their winter quarters until April 10th, when I took them out and moved them about 50 yards to where I wanted them to remain. This I did at night, or after sundown rather, and without the loss of a dozen bees.

The hives were of such construction, being only half inch stuff and hinged together on one side to open out like a book, that I was afraid of chilling the bees too much and doing more harm than good by trying to examine them much, so I let them go, until about 2 weeks ago when, fruit trees being in bloom, I concluded to try my hand at transferring. Upon examination then, I found one swarm dead, starved to death with the exception of *one bee, the queen*. I secured her and saved her for an emergency, which presently arose.

Next day I began the operation of transferring, green as a gourd except from what GLEANINGS has told me, but with tools and implements sufficient almost to build, scrub out, and furnish an ordinary house, much more, a "bee house." I succeeded

finally in transferring one stand. The job was a poor one, the wind blowing almost a hurricane all the time; the consequence was I killed about $\frac{2}{3}$ of the bees *including the queen* (I know there *was* one present, from eggs and brood). The honey was broken and running, the combs were blown out of my new frames in which I had fastened them, bees were drowned and smoked to death, and the state of affairs bad generally. After awhile, when the few remaining bees had quieted down, I gave them the queen mentioned above, which they received indifferently, not seeming to care whether she was there or not. I was so disgusted with this job (in fact, I had more stocks left than I cared to begin with) that I was in hopes the others would rob them and utilize the honey, and I could distribute the brood amongst them. As if to carry out my wishes, they did this very thing, and another swarm was gone, not wholly a loss, however, as many of the bees went to other hives and were accepted, and the honey and brood were saved in the same way, by distribution.

After waiting in vain for nearly a week for the wind to go down, and fearing fruit blossoms would be gone and my transferring not done, I went at it again, one morning about 9 o'clock. I cleaned out my buggy house and took the bees in there and transferred the remaining 7 swarms in that way. By half past four, I was through, and I think I did it well too. As every thing was kept clean, I had no robbing, and received but one sting. When I tell you that my bees were all blacks, and had not been handled or interfered with in any way for 2 or 3 years before I bought them, I think you also will consider my success in my first lesson in transferring, very good.

They are now in chaff hives, and all doing nicely. All are busily at work gathering pollen, and rearing brood, but getting very little honey, as fruit trees are done blooming and there are very few flowers.

Should I keep the quilt down over them?

SMOKERS AND TRANSFERRING CLASPS.

Now I want to "grumble" a little at your wares. I could not make the cold blast Simplicity smoker burn at all, and had it not been for the old style Simplicity I had, I should have been in a bad fix. I tried rotten wood, dry corn cobs, brown paper, cotton rags and every thing else I could think of for fuel, but it was "nogo." The transferring clasps also, I think too light and flimsy for such heavy combs as I had. Could they not be made stronger to advantage? and what was the matter with the smoker?

N. H. ALLEN.

P. S.—Mine is a hexagonal apiary, 7 chaff hives and 5 Simplicitys, sawdust and all.

Kirkwood, Mo., May 5, '79.

N. H. A.

Under the circumstances, you did exactly the proper thing, to take the hives into an out building. Every package of clasps should contain light ones, and stiff ones, short ones, and long ones, so that the operator may choose those best suited to his work. I will see this minute to their being put up.

While the great majority have been extravagant in their praises of the cold blast smoker, a few have complained about their going out. I have repeatedly tested them, and ours all burn until the fuel is gone, without going out at all. One filled with the rotten wood and set down without any blowing at all, burned from 9 o'clock until 12. A roll of rags did still better, and I cannot see where the trouble lies unless your fuel is poor. Two of our friends have pricked a hole with an awl into the central blast tube, to get a blast directly on the fuel, but I do not like this, because it blows smoke out at the draft hole. Some prefer a larger tube at the top of the cone, but I object to this, because it is more apt to let coals and sparks out. We light them repeatedly while making them, but find no trouble. I will have the matter more thoroughly examined, and will pay return postage on every one that our friends can't make go to suit them with

proper fuel. We are just making arrangements to send a sample of the fuel with every smoker.

The "Smilery."

This department was suggested by one of the clerks, as an opposition to the "Growlery." I think I shall venture to give names in full here.

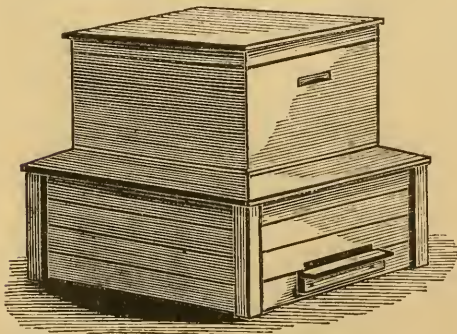
JUST now I am feeling very comfortable. Yesterday morning, I received a new No. of GLEANINGS, which always gives me pleasure, and then, in the afternoon, I got the goods you shipped on the 23d., all in good condition apparently. I have not yet opened the box of fdn. The smokers are all right. I had been doing without one for 2 or 3 weeks, having let a friend have my old Simplicity, and I guess, if you could have seen me about the time I got that box open and got one of those cold smokers out, you would have thought me a fit subject for the "Smilery". Please accept thanks—many thanks.

My sister (whose bees I managed last season) and I have lost but one out of 28 colonies.
Somerset, Ky., May 4, 1879. M. E. PARKER.

Three weeks ago, a swarm came to me and settled on a peach tree in my apiary. I hived it, killed their queen, and gave them brood, and now they have an Italian queen, making me 15 stocks on the 15th of April, from 14 last fall. Don't that look like smiling? My bees did not dwindle a bit, as they say the Italians do in the spring. I have no other kind but the yellow backs, and they are strong enough to swarm now.
Union Valley, Mo., May 9, 1879. JAMES PARSHALL.

ONE STORY CHAFF HIVES.

SEND you a pencil drawing of the chaff hive I am making this spring. I made the pattern last Jan., and have made quite a lot of them since. It is so made that it can be used for a 1½ or 2 story hive. It is 25½ in. long, and 21½ in. wide from corner to corner. The corner posts are 12 in. high and ¾ in. thick, cut like those on your chaff hive. The frame on top is 26 in. long and 22 in. wide, made of ½ in. stuff. On top of this frame, is another just like the top edge of a Simplicity hive, that shows ¼ in. on the outside. The box inside is 18½ x 14½ x 9½ in. The end pieces of top frames are ¾ in. narrower than the side pieces. To form the rabbet, the tin rabbet rests on the top edge of the inside box. The drawing represents a Simplicity hive set on a chaff hive. Please give your opinion of it.



SMITH'S ONE STORY CHAFF HIVE.

Bees have wintered very badly around here this winter; a great many have lost from ¼ to ½ of their stock. I had 5 stands last fall, 4 in Simplicity, and

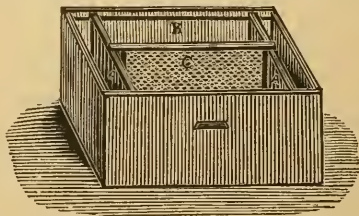
one in a farmer hive. They all wintered nicely. I had one on 5 racks that were not over half full of comb and they came out as healthy this spring as any of the rest. They are building up very fast now. I used chaff cushions and division boards, and let them take out doors for wintering. The coldest weather we had, was 25° below zero; but it did not stay that way long. It ran from 18° to 23°.

I traded hives and sections for 3 splendid colonies this spring, getting the bees, combs, and queens, for \$10.50. I think if they had been sold to you at \$1. per qt., they would have brought \$20., besides comb and queens. If I have good luck with my bees, I will have quite a lot by the time I am 21, unless they die off next winter.

Lewisville, Ind., May 5, 1879. DAVID C. SMITH.

The plan given above has been submitted a great many times; the principal objection is that it cannot well be made to exclude the frost as perfectly as a two story chaff hive. Whenever there are sticks or lumber that runs through the chaff to the brood nest, or near it, the frost is pretty sure to follow. With the above arrangement, a crack or joint is left right near the top of the brood chamber. If I could readily have the bees just as I wanted them, I would have them with chaff on every side, for 4 or 6 inches, and not even a stick of any kind, to connect the outer shell with the inner one containing the bees. Of course we must have a passage for the bees through the chaff, but I would have them perfectly surrounded with chaff, with this exception. The arrangement given below by another friend, and which has also been given a great number of times, is still more objectionable.

My hive is 21½ in. long, 17½ in. wide, and 10 in. deep, with 8 L. frames in a hive, and room enough each side for a frame of sections, or for chaff cushion division boards for winter. Each end of the frames, C, is supported by a movable end, A, that is taken out in the fall, and division boards put in their place, making chaff all around.



HOXIE'S ONE STORY CHAFF HIVE.

The top is about 4 in. deep with a piece of sacking tacked in the rabbet, B, and filled with chaff. The lower edge of the hive is rabbeted and fits over the bottom, which is movable. This is only for a one story hive, and side storing. I have a wind-mill with which I run my 6 in. buzz-saw, and can saw up my hive stuff pretty fast. If this is a good hive, I want to use it.

North Adams, Mich., May 4, '79.

This amounts, virtually, to having a chaff division board on each of the 4 sides. The spaces and crevices thus unavoidably left will be a serious hindrance to a perfect protection, in a winter like the last. I would rather put the bees and combs into a thin light box, and pack this on all sides, inside of a larger one.

D. W. HOXSIE.

ARRANGEMENT OF BEE-HIVES IN LARGE APIARIES.

TWO systems of arrangement, or rather misarrangement, seem to prevail almost universally in the apiaries of the country. Both tend directly to the same results, the bewilderment of the bees when tired or excited, or when making their first flight. A bee when excited and confused, like a man in similar condition, refuses all instruction. All the rest of the universe has gone awry, and he alone persists in having things as they ought to be. Go into that particular hive which he has pitched upon, he must and will. Part of these wanderers are probably killed by the sentinels, causing so much direct loss to the apiary. A great many of them, however, become domiciled in the hives which they have got into, and form a considerable body of badly naturalized aliens in the commonwealth. It is not every bee-keeper that has any idea to how great an extent bees attach themselves to other hives than those of their birth. Last spring, the writer saw a number of hives of bees, mostly blacks, wheeled into ranks and then moved, little by little, to a new location a few rods distant. Upon reaching their positions the rear ranks had nearly all the flying bees, and the front little else than young bees and brood. Late in the fall of 1877, two Italian queens were introduced into a considerable apiary of blacks. By the next June, every hive in the lot seemed to contain more or less Italian bees. No great harm appears to result from such mixing while honey continues plenty, and easy good-nature reigns supreme; but by and by, hard times come; there is nothing to do, and all hands are a little bit discontented and cross. Under such circumstances as these, the foreigners of the hive are liable to become first class malcontents, bailing the queen, and raising communist mischief generally. It may be doubted whether an alien bee, down to the bottom of his heart, is ever quite loyal to the queen, or that he is ever fully satisfied with the scent of her children. This matter of different progeny, and different scents in the same hive, can hardly else than increase the difficulty of detecting and expelling spies and robbers. While carelessness is the rule, robbers can take advantage of the mixed character of the swarm to get in unchallenged. When "eternal vigilance" sets in, it would be strange if the attempt were not made to expel the robbers and the foreigners both together. Do not the Italians sometimes expel the last of the blacks from the hive into which an Italian queen is introduced? The writer has seen something that looks very much like it.

Probably the result mentioned above cannot be entirely prevented, where large numbers of swarms are kept near each other, but assuredly something can be done by a judicious system of arranging the hives. Place each hive so that a simple glance of the eye suffices to locate it, without any counting or surveying, and it really don't seem as though the little addle-pates ought to get lost. Of the two systems of arrangement just referred to, one is the rank and file system (of which the hexagonal plan is only a tasteful variation), the other is the single file system, under which the hives, usually too close together, are placed in long lines or curves. Both styles are bad, the former probably the worse of the two. Standing in the midst of an apiary of a hundred hives arranged in rank and file, lay a pin on one of them and walk away a dozen rods. Now re-

turn and put your finger on the pin. You can't do it. You must needs count, and see what row it is, and what number in the row, and repeat the counting process when you return. The key of the difficulty lies in this simple fact; none of the brute creation can *count*. You can teach an intelligent dog to bring you a nail, or to bring you a mouthful of nails, but you cannot teach him to bring you just three or even just two. Counting, even so many as two, is a purely human faculty. Do not ask your bees to do without counting what you yourself cannot do without counting. In a line of three objects a brute would distinguish the right, the left, and the middle; in a line of four the right and left, and the one adjacent to the right, and the one adjacent to the left would be located; if the line contained as many as five, the middle one could probably be distinguished in addition to the four as just stated; but beyond this confusion would be sure to begin. This same trouble comes up in sitting large numbers of hens, as one may see by referring to Stoddard's "Egg Farm."

The plan here proposed is to divide the apiary into a considerable number of groups, with each group so arranged that a mistake in the identity of any hive could not readily be made. The following diagram illustrates.

NORTH.							
o o o	o o o	o o o	o o o				
o x x	x x o	o x x	x x o				
o o o	o o o	o o o	o o o				
o o o	o o o	o o o	o o o				
o x x	x x o	o x x	x x o				
o o o	o o o	o o o	o o o				
o o o	o o o	o o o	o o o				
o x x	x x o	o x x	x x o				
o o o	o o o	o o o	o o o				

SOUTH.

The positions marked x are to be left vacant except when the apiary is crowded. Without them there are places for 84 hives, and with them for 108. The space occupied is only 70x80 feet. The hives are to stand four feet from center to center, east and west, and five feet from centre to centre, north and south. The broad alleys are each ten feet clear. This wide space is mainly to make the division very distinct to the eye; but will be incidentally useful in allowing a barrow or hand cart plenty of room to pass with the extractor, or honey barrel, or hive of bees. A few feet of the dimensions named remain for border around the outside. A modification of this plan, using the same number of groups, but putting four hives in a row east and west, accommodates 144 hives, and uses just about an eighth of an acre of ground. A bee coming home to an apiary arranged as in the diagram will naturally first locate the group in which he belongs. Excepting two, the groups are all on the outside, and are either corner groups, middle groups, or groups adjacent to a corner, and thus easy of identification. Each of the two groups not on the outside is conspicuous by standing in the centre of a hollow square formed by eight groups. One's hollow square includes the east range, and the other's the west range. While the apiary only contains 70 hives, both the middle groups can be left entirely vacant. The group being once sighted, our hypothetical bee, whether he live in north row, south row or middle row, east, west, or middle hive, need not go insane studying

the matter, but may just quietly go home, as a good bee should. The same principle of groups and broad alleys can be applied to the hexagonal method of arrangement, if one must needs place in that form. Many modifications can be devised, to suit taste and locality, the cardinal principles being very simple, and only two in number. First, no regular, unmarked series, of either hives or groups, must exceed four, or at the utmost five, in order that each member of the series may be singled out optically, without thought. Second, the distance and arrangement of details must be such that bees will not be likely to run on foot from one doorway to another. When this matter is attended to, so that no insect would think of passing from one alighting board to another without taking wing, it probably makes little difference whether the distance is three feet or eight feet. E. E. HASTY.

Bodley, Ohio.

I most heartily endorse your reasoning, friend Hasty, and while I read your article I could not help smiling and nodding my head approvingly, as I thought of the many times I had experienced what you mention. I think, however, there is one point which you lose sight of, and that is the use of hives differently made. Suppose we use chaff hives in the points marked x, or suppose we make the entrances of the hives face in different directions; such as, east, west, and south; or suppose we have occasionally a single story hive, while all the rest are double story. I prefer the hexagonal arrangement, on account of the economy of space, and consequently of the steps of the apiarist. Although I assent to the justice of your reasoning, I am not quite ready to adopt the precise form of an apiary that you suggest. We have just been laying out an apiary for 500 hives on our grounds; there are 7 apiaries in all; one in the centre and 6 all about it. The land marks for the bees are to be made with Chaff and Simplicity hives, differently arranged. I think it is possible to have order and system, and still avoid muddling the bees. I am very glad indeed that you have brought the subject before us in such a happy way, friend H.

May 17th.—Friend H., I have had some practical experience in the matter you mention, sooner than I expected. In moving the bees onto our new grounds, we filled the central apiary in just the manner shown on the last cover of the A B C book. They were all in two story hives, and to have them look nicely, Will gave them all a fresh coat of paint. All were placed with the entrances facing the east, just as they did in our old apiary. Now I shall have to explain that our old apiary has a building in the centre, several trees scattered about, (as you may remember), house apiary, old strong grape vines, and a great variety of objects, that might give the bees landmarks. This one was on the clean, green lawn, and not an object was to be seen, but the hives and a single stake, to which the grape vine was trained. Well, what do you think? I expect I might have known what to think. If you stood in front of a hive, first you knew, all of its bees were going into the next one. A few hives that had no bees in them, had about as many bees around the entrance, as

the others. Bees heavily laden with pollen, were running one way and the other, in front of hives, looking sadly puzzled because they could find no entrance, the entrances being closed up. Four hives, containing good colonies, stood in a row; a fifth one, an empty hive, was added, and almost before it was set down, a shower of yellow Italians, laden with pollen and honey, alighted, and commenced going in. You see they had marked *their* hive as the last in the row, and when another was added, of course they piled into that. Although in some trouble, I was obliged to shout in merriment, to see their astonishment, and I pitied them so much, they were given a frame of brood, and now they are a fair colony. I hereby give notice, that this is my invention for swarming bees automatically, and no body shall patent it. Just think how simple; set your new hive down, and the bees pile into it, almost before you get it leveled up.

What did we do with the beautiful hexagonal apiary? I called Mr. Gray, who is a genius for inventions, explained the trouble, and in a twinkling, with the assistance of the engraver, we had each hive so the bees knew it, and so that you, friend Hasty, could lay a pin on any one of the 60 hives, and go to it at once.

It was all fixed by turning the hives so that the entrances, instead of being all to the east, were turned to all points of the compass. Of course we had it so that no two adjoining, were turned in the same direction. If you will turn to the picture of the hexagonal apiary on the back cover of any A B C book, you will readily understand it.

Suppose we take the north row of hives, and turn every other one west; we shall now have two entrances facing each other, and two backs facing each other, clear through the row. Now take the next row, and turn one entrance south, the next north, and so on through. Turn the third row, one east, the next west, and so on, as we did the first row. Now the fourth row, one north, and the next south, and so on. It is an easy matter for both you and the bees, to remember which way the entrance pointed, and as it is 14 feet in either direction before we come to another similarly situated, this brings the hive into another part of the apiary, or at least so far from any one like it, that there is little danger of confusion. The plan answers the purpose perfectly, and the apiary presents an orderly and systematic appearance to the eye.

FIXING THE ENTRANCES.

Our apiary is surrounded with evergreens as wind breaks, but as these are not yet grown up, the location is much more windy than the old one, and the saw-dust put around the alighting boards was blown about so badly, I was forced to think of something else. The handiest substance to keep down weeds and grass, was coal cinders from the boiler room, but these were too dark colored. As I have explained before, I want the space around the entrance so clean that I can see dead bees, should there be any robbing, or even a dead queen, should one be brought out. I can often tell when a queen is re-

placed, by having a clean space in front of the hive, for if I do not see the body of the old queen, I am pretty sure to see the immature young queens dragged from their cells. Well, after we got the coal cinders nicely stamped down, we pounded up some clean, white sandstone, left after building, and made some nice white sand that we have spread over the cinders, making a door yard that will not easily be troubled with grass and weeds, and that neither sun, rain, or wind, will disturb or discolor.

Honey Column.

Under this head, will be inserted free of charge, the names of all those having honey to sell, as well as those wanting to buy. Please mention how much, what kind, and prices, as far as possible. The prices quoted in our cities for honey are, at present, too low, to make it worth while to publish them. As a general thing, I would not advise you to send your honey away, to be sold on commission. If near home, where you can look after it, it is often a very good way. By all means, develop your home market. For 25cts., we can furnish little boards to hang up in your door yard, with the words "Honey for Sale" neatly painted. If wanted by mail, 10c. extra for postage. Boards saying "Bees and Queens for Sale," same price.

CHICAGO.—Honey—Choice, in single comb boxes, 14@16c. Extracted, 9@10c.
Bees-wax.—Choice, yellow, 24@25c. Darker grades, 1c@20c.

NEW YORK.—Honey—Best comb, 11@13c. Extracted, 7½@8½c.
Bees-wax.—Choice, 24@25c.

CINCINNATI.—Honey—Best, in single comb boxes, 10@12c. Extracted, 8@10c.

CALIFORNIA.—Honey—Comb, 9@10c. Extracted, 4½@6c.
Bees-wax.—Best, 30@31c. For darker colored, 20@22½c.

"AFTER THE BATTLE."

SOME GOOD SUGGESTIONS IN REGARD TO THE LOSSES.

THE outlook in bee keeping is very gloomy at this time, in this vicinity. I think it safe to say that 9-10 of all the bees that went into winter are dead.

I have spent several days among the bee keepers of this and Erie counties, and find the loss almost universal; I know of but two who have wintered with anything like fair success. Many have lost all. Those protected or housed have wintered best but all have suffered. Yet, who can say the result may not be favorable in the end? It will have a tendency to benefit at least in two directions: to the studious bee keeper, it will be another lesson in winter protection; it will also be a most favorable time to introduce and improve the pure Italians. In my locality, and it is true also in many other localities, the coast is clear, when heretofore it has been an utter impossibility to breed queens with any certainty of their purity. There is now no need of going to "some lone isle of the sea" (or Lake) to get away from black bees; they have got away from us. Now comes the work of building up—of reconstruction. Who will give us the best hints how to do this work?

It is easy to advise in prosperity, but it is *after the battle* that we need discretion and judgment. More generalship may be displayed in retreating than in advancing.

I had, last fall, two apiaries—one of 100 swarms, and one of 32. A portion of the bees were housed in Nov., and a portion left out until Feb. 1st. Of the smallest apiary not one poor bee remains to tell of the *dire disaster*. Of the other, about 35 swarms are struggling along and will probably *weather the cape*. Notwithstanding this poor encouragement, I have made a special effort to put my bee yard (I have but one now) in good working order, having retreated inch by inch in good order. I have removed every stick, every empty hive, every stand, raked the *saw dust* smooth and even, and made the field of disaster look as pleasant as possible.

My design is now to take advantage of the present opportunity, and introduce a queen of known purity to every swarm, and, with care, I think I may be able hereafter to keep my stocks pure, not for the sake of selling queens, but for the purpose of raising honey, which is much more profitable.

H. R. BOARDMAN.

East Townsend, Huron Co., Ohio, Apr. 28, 1879.

THE TOAD QUESTION.

I WISH to give GLEANINGS an account of my experience with toads, and, by way of preface, would say that they are unquestionably serious pests to bee-keepers living in the vicinity of swamps, or small creeks, where facilities for their propagation are afforded.

My apiary, last year, was situated near a piece of swamp land, over which considerable patches of water stood through the spring months. As might be supposed, toads multiplied *ad infinitum* in this standing water, and invaded my apiary in great numbers. To put a stop to their depredations soon became quite a serious consideration with me. The havoc they were nightly committing among my bees became so distressing, and the rapidity with which they were depopulating my little insect village so incensed me, I forgot the Sunday-school injunction of my youth, "Don't harm the toad." So, calling my two little boys, and giving them suitable weapons, I told them to "smash 'em." And they did smash them, and with such a relish that I began to repent. Mr. Editor, you are aware how a little boy's fingers tingle to get a lick at a passing toad. After they had destroyed a large number, and had inspired the remainder with deadly fear, I told them that would do, and that they must not kill toads any where but in the bee-yard, and that they must not go in the bee-yard unless I went with them.

I at once set about inventing some plan to circumvent the toads. Remembering to have seen 4 toads in a hole in the ground about 18 in. deep, made with a post augur, I procured a 9 in. post augur, and bored a hole 18 in. deep, in front, and under the edge of the portico, of every 4th hive. I use the L. hive with legs attached, elevating it about 5 in. from the ground. Replacing the slanting alighting boards over the outer half of the holes, I awaited results, and had the satisfaction, next morning, of finding the holes occupied with a fair representation of the toad fraternity. I allowed them to remain in quiet possession of their new quarters, to give a welcome greeting to others that continued to come nightly. I discovered, after a few days, that they had abandoned the idea of escaping in a vertical direction, and had commenced to make a series of tunnels off in different directions. Estimating that they would employ their time probably for the remainder of the season in effecting their escape by

that means, I concluded to let them alone, and had no more trouble on account of toads during the season.

To make these holes effective in entrapping toads, I think they ought to be at least eighteen inches in depth, and so located that the hive, being several inches above the ground, should project over one half of the hole, and the alighting board, slanting up to the hive, should cover the remainder. If the hole is left open by removing the alighting board about sundown, it might catch toads faster, but a great many loaded bees coming in, would fall in and be destroyed by the toads on the inside.

Although this article is already too long, I can not close without expressing my disapprobation of the practice of killing toads. They are a part of creation, and have a humble though important office to perform in the economy of nature in the destruction of insects hurtful to vegetation.

Cyruston, Tenn., May 3, 1879. W. L. MOORES.

WINTERING.

BURLAP VERSUS ENAMELED CLOTH, THE BEST KIND OF A FEEDER, ETC.

TO say that I am surprised to think that you lost so many bees *won't express it*. I begin to think bee culture a very uncertain pursuit, as I had formed an opinion that what you did not know about bees was worth but little. If possible, give us the why's and wherefore's, so we can guard against such disaster.

My bees wintered well; I only lost one, and that by uniting it with another, so as to make one good swarm out of 2 poor ones. I think I have learned something this past winter. First, no more enameled cloth for winter; it is not an absorbent, by any means. I think burlap is the stuff by all odds, as it permits the dampness to pass off.

I will state how I fixed my bees for winter. I got them all in a straight row, about 2 feet from centre to centre, and filled the upper story with a sawdust pillow as dry as it could be got. Some were contracted by division boards and some were not, all, except 3 or 4, with enameled cloth sheets over the frames; these 3 or 4 had the burlap next to the bees, and no enameled cloth. The entrance was about 3x3 in. I use Cook's bottom. In the first part of Nov., I built a wall with 1/2 x 3 in. x 16 ft. chaff hive stuff, all around the hives, about 12 or 14 in. from them, except on the entrance side, and there built the wall slanting in to the entrance so the bees could fly at any time. I then packed straw around the hives as compactly as I could, made a roof out of the same material, in 4 ft. sections, so I could lift a section off at any time, and examine any hive I chose. When the extremely cold weather came, I covered the entrances with straw and boards, and left them alone until the snow was melted and gone, then let them fly. As soon as another snow fell, I shut them up again. The mice got into 2 hives and cut the combs some, but otherwise did no damage. Two hives, transferred late last fall, had the dysentery pretty badly, and a good many died; so I doubled them up this spring, and they seem to get along well. In the hives covered with burlap, only a very few bees died, not 1-10 part as much as in the others. The Italians and hybrids are a long way ahead of the blacks, under the same treatment.

We have very bad weather; it is either cold and frosty, or warm and windy. Soft maple blossoms

all froze as fast as they opened, and every thing else so far; but I am prepared for it, as I reserved, last fall, some 60 or 80 full slabs of honey, enough to winter as many more bees as I had. When I find a comb empty, I take it out and put in a full one. A full comb is the best feeder, I think.

Dixon, Ills., May 4, 1879.

B. F. PRATT.

I guess the principal part of the "why's and wherefore's" is that our bees were not all prepared for winter; those in the house apiary were wintered without any trouble, and the principle of it is about the same as the plan you give, with far less trouble. I wonder if it would not be a good plan, to make some small, portable house apiaries. I have no fear of the enameled cloth, if it is perfectly protected from frost all around, but as this is a pretty difficult matter to secure, I think the burlap or our wooden mats are preferable. Your plan of feeding is certainly equal to, if not ahead of, any other, taking all things into consideration. The only trouble with it is that few bee-keepers will have the prudence to keep these solid slabs of honey on hand.

"GALLUP."

WHERE HE IS, AND WHAT HE IS DOING BY THIS TIME.

ON page 133, April No. of GLEANINGS, you really wish for a photo of a real nice, orderly, California apiary. This is to inform you that Mr. Wilkin is thinking strongly of sending you a photo of his shortly; if he does, I shall try to give you a history of its surroundings, as I know it would be interesting to your numerous readers. He has every thing fixed up in "ship shape," and in so doing has copied considerably from GLEANINGS.

I am well pleased with this climate. There is probably no better place on the face of the globe as a health resort than some portions of Ventura Co., especially for asthmatic and lung difficulties.

The bee season is a little backward, but as we have had abundance of rain lately, the prospect is good, and we are working hard preparing for the season as fast as possible. There have been but very few natural swarms yet. We are using the foundation and it is a splendid success. I don't know but I shall be strongly tempted to start an apiary on my own hook another season; I have not lost any of my old interest and enthusiasm in bee matters. Californians will have to sell honey cheap, but they can afford it cheap, as there are no drawbacks in wintering, and an apiary properly managed need never suffer from drouth or dry seasons. That is, the stock can be kept good and self supporting. During the whole of the past winter, we have had 7 rainy days when the bees could not fly; in fact, our winter weather is as near like your June weather as can possibly be.

E. GALLUP.

Scenega, Cal., April 12, 1879.

Who does not remember Gallup, and his inspiring articles in the *American Bee Journal*, a few years ago? It is true, he went vehemently for bushels of bees when Hosmer was proclaiming what might be done with pints, but they both gave us some excellent ideas in the directions they were each one working. Go on with that apiary, friend Gallup, and let us hear from you as often as we did a few years ago.

TRANSFERRING. I firmly believe *every one* of our readers can do their own transferring, and do it nicely, if they will only make up their minds that they *will* succeed. If you are awkward and inexperienced, it will take you longer, that is all.

It has so often been said that the best time is during the period of fruit blossoms, that it seems almost needless to repeat it. Be sure that you have cleared away all rubbish from about your box hive or gum, for a space of at least 6 feet all round. We would decidedly prefer to have the hive stand directly on the ground with all rough and uneven places filled up with sawdust nicely stamped down. Make it so clean and tidy that you can find a needle if you should drop it, and be sure you leave no cracks or crevices in which the queen or bees may hide or crawl. Make all these arrangements several days beforehand if possible, so that the bees may be fully acquainted with the surroundings and be all at work; remember we wish to choose a time when as many bees as possible are out at work, for they will then be nicely out of the way. About 10 o'clock A. M. will probably be the best time, if it is a warm, still day. Get all your appliances in readiness, everything you can think of that you may need, and some other things too, perhaps. You will want a fine-toothed saw, a hammer, a chisel to cut nails in the old hive, tacks, and thin strips of pine (unless you have the transferring clasps), a large board to lay the combs upon (the cover to a Simplicity hive does "tip top"), an old table cloth or sheet folded up to lay under the combs to prevent bumping the heads of the unhatched brood too severely, a honey knife or a couple of them (if you have none get a couple of long thin-bladed bread or butcher knives), and lastly a basin of water and a towel to keep everything washed up clean. Now, as I have said before, this is really, a great part of it, women's work, and if you cannot persuade your wife or sister, or some good friend among the sex to help, you are not fit to be a bee-keeper. In saying this we take it for granted that women, the world over, are ready and willing to assist in any useful work, if they are treated as fellow beings and equals. The operation of transferring will afford you an excellent opportunity to show your assistant many of the wonders of the bee-hive, and in the *role* of teacher, you may discover that you are stimulating yourself to a degree of skill that you would not be likely to attain otherwise.

A bellows smoker will be very handy, but

if you have not one, make a smoke of some bits of rotten wood in a pan; blow a little smoke in at the entrance of the hive, but do not get the sawdust on fire. Tip the old hive over backward, and blow in a little more smoke to drive the bees down among the combs; let it stand there, and place the new hive so that the entrance is exactly in the place of the old one; put a large newspaper in front of the new hive and let one edge lie under the entrance. The returning bees, laden with pollen and honey, are now alighting and going into the hive and rushing out again in dismay at finding it empty; we therefore want to get one comb in for them, to let them know that it is their old home. Move the old hive back a little farther so as to get all round it, and give them a little more smoke whenever they seem disposed to be "obstreperous"; and now comes the trial of skill and ingenuity. The problem is, to get those crooked, irregular combs out of that old hive, and then to fix them neatly in the movable frames as in the cut on next page.

Your own good sense will have to dictate much in this matter. Saw off the cross sticks, if such there be, and with your thin knife cut the combs loose from one side; cut off the nails and pry off this side, but don't get the honey running if you can help it. We have as yet said nothing about bee veils, and though we keep them to sell, I really do not think you need one, *unless* you are so careless as to get the honey running and start robbers. When the side is off, you can probably get one comb out. Lay it on the folded table-cloth, take out the comb guide, lay the frame on it, and let your feminine friend cut it so as to require that the frame be sprung slightly to go over it. With the clasps she can cut and fasten the combs in as fast as you can take them out; if sticks and tacks, strings or rubbers be used it will take some longer. When the frame is to be lifted into a horizontal position, the board, cloth and all is to be raised with it. With the wash basin and towel, keep the honey neatly wiped up. If robbers begin to annoy cover both hives with a cloth while you are fitting the combs, and keep the brood in your new frames in a compact cluster, as it was in the old hive, or some of it may get chilled. When you get near the central combs, you will probably lift out large clusters of bees with the comb; these are to be shaken and brushed off on the newspaper; if they do not seem disposed to crawl into the hive take hold of

the edge of the paper and shake them up toward the entrance; they will soon go in. A paper is better than a cloth, for they cannot stick fast to it. If you carefully fixed things before commencing, so there was no crack or crevice into which a bee could crawl, except into the entrance of the new hive, and if you have been careful—as you always should be—to avoid setting your (clumsy?) feet on a bee, you certainly have not killed the queen, and she is in one hive or the other. To be sure she is in the new hive, shake all before the entrance when you are done, and see that *every* bee goes into the hive. Save out the drone comb, and fix it all in a frame or frames by itself. It will do well for surplus honey, but we don't want it in the brood chamber. Utensils and bits of comb that have much honey daubed on them may be put in the upper story for the bees to clean up, but if the weather is cool, keep the quilt down over them closely for a day or two. We would look them over carefully every day or two, and as fast as they get the combs fastened, remove the clasps or other fastenings and bend the combs into place.

Each operation is very simple and easy in itself, if you go about it at the proper time and in the right way. Bear in mind that the bees, from first to last, are to be kept constantly in subjection, by use of the smoke, and that you must never let them get the faintest idea that, by any possibility, can they become master. Send them back among the combs as often as they poke their heads out, until they are perfectly subdued, and hang in quiet clusters, like bees at swarming time.

It makes no difference which side up the brood combs are, in transferring; turn them horizontally from their original position, or completely upside down, as you find most convenient. Store comb in which the cells are built at an angle, would perhaps better be as it stood originally; but if you do not get it so, it makes very little difference; the bees have a way of fixing all such matters very quickly.

WHEN TO TRANSFER.

Several inquire if we would advise them to transfer bees in the months of June, July, Aug., etc. We really do not see how we can answer such a question, not knowing the persons. Among our neighbors, there are those who would work so carefully that they would be almost sure to succeed; and again, there are others who would be almost sure to fail. We are inclined to think those who

make these inquiries would be quite apt to fail, for the careful ones would go to work without asking any questions, and do it at *any* season, if they were sufficiently anxious to have it done. Bees can be transferred at any month in the year. If in June or July, you will need an extractor to throw out the honey from the heaviest pieces, before fastening them into frames. The spring has been decided to be the best time, because there are then less bees and less honey, as a general thing, than at other times. The bees will fix up the comb better, when honey enough is being gathered to induce them to build comb to some extent, and the period of fruit blossoming seems to secure all of the above advantages more fully than any other season.

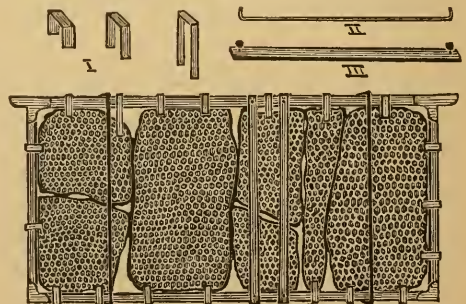
APPLIANCES FOR FASTENING IN THE COMB.

We generally use and rather prefer transferring clasps.

These are made of pieces of tin of various sizes, from 2 to 5 in. in length, and from $\frac{1}{4}$ to $\frac{1}{2}$ in. in width. They are bent twice, at right angles, so as to leave just $\frac{1}{8}$ of an inch between the two bends. As I have directed all our frame stuff to be made of $\frac{3}{4}$ inch lumber, these clasps will just slip over either the top, bottom, or sides, and catch on the comb so as to hold it in place as shown in the cut below.

Thin slips of wood something like comb guides, are sometimes used by tacking them to the bars of the frame. Others wind fine binding wire clear around the frames. Some of the large bee-keepers of York State use a long, sharp thorn, which is pushed through an awl-hole made in the centre of the frame stuff. This holds the frame very securely, and the thorns may remain in, to give strength to the comb.

There is still another plan, by the use of bent wires, which I shall call transferring wires. The wires and the manner of putting them on are shown in the cut below.



TRANSFERRING CLASPS, WIRES, AND STICKS, AND THE MANNER OF USING THEM.

These wires have one advantage over the clasps, from the fact that they can be removed without lifting the frames from the hive. Just slip off the top and twist the wire half around, and it can be drawn right up. They also possess another very decided advantage. When very heavy combs are transferred, they, as a matter of course, rest with their full weight on the bottom bar, and it is sure to be bent by the weight, unless made considerably heavier, than would be needed for combs that are built down from the top bar, or for those built on fdn. Well, these wires support the lightest bottom bar until the comb is all firmly waxed into the frames, and depending from the top bar like a comb built on it naturally. It is a very bad feature indeed, to have combs with bottom bars that have sagged, for they are constantly in danger of killing bees by striking the bottom of the hive, or the frames below, when used in a two story hive. To prevent combs being built between the upper and lower story frames, it is desirable to have remaining not more than $\frac{1}{4}$ or $\frac{3}{8}$ of an inch space between them; but we cannot do this, unless we can be assured the bottom bars are perfectly straight and true, and on this account, I am very much inclined to give the transferring wires the preference over all other modes of fastening. While the clasps will fit frames of any dimensions, the wires must be made to fit the frames they are to be used on. When one has many colonies to transfer, it will be well to provide both clasps and wires, using at least one wire to hold up the centre of the bottom bars that have much weight to sustain.

All fastenings, of whatever kind (except thorns), should be removed as soon as the bees have waxed the combs fast to the frames, which will often be by the next day, if the colony is strong and the honey is coming in fast. They should be taken away soon, because they cover the cells and brood more or less. Where the combs were large and straight, I have often cut them to fit so nicely, that the frame could be sprung over them so as to hold them securely enough without any fastenings of any kind.

HOW MUCH OF THE COMBS IN THE OLD HIVES SHALL BE SAVED.

If you choose, you can save pieces not more than an inch square; I have taken little bits of comb and filled frames with them, so as to be finally worked out into very fair combs. The way I did it was to lay the frame on a board just its size and no larger.

The small bits were then put in place and pressed together moderately, until the frame was full. This was then placed horizontally, board and all, over the frames of a populous colony, over night, allowing the bees to go up and cluster over the combs. True to their nature, they at once set to work, and welded or cemented these pieces all together. When it was so it would hold, I raised board and all perpendicularly, and slipped off the board, and hung the frame in an upper story, when honey was being gathered. An assistant was so sure that these combs could never be nice ones, that I marked them with a pencil; a few days after, when the cells had all been drawn out evenly, and filled with honey, I was very loth myself to admit that the thick, beautiful comb I held up, was the mass of odds and ends of all colors which I had thus patched up. On holding it up to the light, the old ground work could plainly be seen. While such combs answer excellently for extracting, as does any kind of drone or store combs, they are not profitable for the brood chamber. In fact, it is doubtful if any natural combs are as profitable for the brood apartment, as those built on our latest improved fdn. On this account, we seldom, nowadays, save any combs in transferring, except those containing brood, or the very nicest and straightest worker comb. The rest, after having the honey fed out, is condemned to the wax extractor. I think the readiest way of getting this honey out is to transfer the combs and feed it out, placing it near enough the outside of the hive, to avoid having the queen use it. It may also be placed at the other side of the division board.

If you have many weak colonies in your apiary, you may transfer a colony, and divide the combs and bees around among those needing it. In this way, you can have the combs all fixed and disposed of very quickly.

One who is expert in the business, should transfer a colony in an hour, on an average; I have taken a heavy one from a box hive, and had it completely finished in 40 minutes. Where the apiarist goes away from home to do such work, the usual price is \$1.00⁰⁰ for a single colony, and less for more than one, according to the number.

Some bee-keepers drum out the bees before transferring. The drumming is done by placing a box or hive over the old one, and drumming on the sides of the latter, until the greater part of the bees are up in the box and can be lifted off. After having

practiced both ways, I can but think the drumming a waste of time, and a needless annoyance to the bees. If you work properly, the bees should keep bringing in pollen and honey during the whole time, and if you place their brood combs in the same relative position to each other, they need scarcely know that their outer shell has been exchanged for a different one. Should the bees seem troubled by the different appearance of their new home, the front board to the old hive may be leaned up over the entrance for a few days.

Many inexperienced persons have reported having succeeded perfectly in transferring, by the above directions, which have been in print now for the last five years.

TRANSFERRING IN DOORS.

If the weather is bad or the bees at all disposed to rob, you can, if you choose, carry the hive and all into some convenient out building, or into your honey house, to do the transferring. If you can work before a door with a window in it, all the better; but if no such door is at hand, do the work before a window. When you are through, place the new hive with its combs on the old stand, take out the window, and shake the bees onto the newspaper before the entrance and they will all go in.

If your new hive is placed directly under the window while you are transferring, a great many of the bees will collect on the transferred combs, keeping the brood warm, and being just where you want them when the hive is carried to its stand. We have a glass door in the honey house, on purpose for such operations. When bees are brought in for any purpose, the restless and uneasy ones soon collect on the glass, and by swinging the door open, they quickly take wing, without much danger of admitting robbers. My neighbor, Shaw, has a window on pivots, which allow it to be swung the other side out, by simply touching a spring. This throws the bees on the outside instead of the inside of the glass, where they can take wing at their leisure. I have often thought such an arrangement would be very convenient for windows in a house apiary.

Now do not take them into a room filled with all kinds of dust, rubbish, and cobwebs, for they will get all over the room, and get lost, and you will have all sorts of trouble. There should be only one window in the room, and every thing near it should be removed; the floor should be clean, and no place left for them to crawl into and get lost,

just as I told you about the out door transferring.

UNITING BEES. Uniting colonies is much like introducing queens, inasmuch as no fixed rule can be given for all cases. It is a very simple matter to lift the frames, bees and all, out of one hive and set them into another, where the two are situated side by side. Usually, there will be no quarrelling, if this is done when the weather is too cold for the bees to fly, but this is not always the case. If one colony is placed close to one side of the hive, and the other to the other side, and they are small enough for a vacant comb or two between them, they will very rarely fight. After two or three days, the bees will be found to have united themselves peaceably, and the brood and stores may then be placed compactly together, and your chaff cushions put in at each side. If there are frames containing some honey, that cannot be put in, they should be placed in an upper story, and the bees allowed to carry it down. You should always look to them 20 minutes or half an hour after they are put into one hive, to see if everything is amicable on "both sides of the house." If you find any bees fighting, or any doubled up on the bottom board, give them such a smoking that they cannot tell "which from t'other," and after 15 or 20 minutes, if they are fighting again, give them another "dose," and repeat until they are good to each other. I have never failed in getting them peaceable after two or three smokings.

If you wish to unite two colonies so large that a single story will not easily contain them, which, by the way, I feel sure is always poor policy, or if their honey is scattered through the whole ten combs in each hive, proceed as before, only set one hive over the other. If this is done on a cool day, and the bees are kept in for two or three days, few, if any, will go back to the old stand. If the hives stood within 6 feet of each other, they will all get back without any trouble anyway, for they will hear the call of their comrades who have discovered the new order of things. Sometimes you can take two colonies while flying, and put them together without trouble, by making the lost bees call their comrades. Only actual practice and acquaintance with the habits of bees will enable you to do this, and if you have not that knowledge, you must get it by experience. Get a couple of colonies that you do not value much, and practice on

them. As I have said all along, beware of robbers, or you will speedily make two colonies into none at all, instead of into one.

WHAT TO DO WITH THE QUEENS.

If one of the colonies to be united has been several days queenless, all the better; for a queenless colony will often give up its locality and accept a new one, by simply shaking them in front of a hive containing a laying queen. From a hive containing neither queen nor brood, I have induced the whole lot to desert, and go over to a neighboring colony, by simply shaking the bees in front of it. They were so overjoyed at finding a laying queen, that they called all their comrades to the new home, and all hands set to work and carried every drop of honey to the hive with the fertile queen. By taking advantage of this disposition we can often make short work of uniting. If you are in a hurry, or do not care for the queens, you can unite without paying any attention to them, and one will be killed; but, as even a hybrid queen is now worth 50c., I do not think it pays to kill them. Remove the poorest one and keep her safely caged, until you are sure the other is well received by the bees. If she is killed, as is sometimes the case, you have the other to replace her. Where stocks are several rods apart, they are often moved a couple of feet a day while the bees are flying briskly, until they are side by side, and then united as we have directed. This is so much trouble, that I much prefer waiting for cold weather. If your bees are in box hives, I should say your first job on hand is to transfer them. If you have several kinds of hives in your apiary, you are about as badly off, and the remedy is to throw away all but one. My friends, those of you who are buying every patent hive that comes along, and putting your bees into them, you little know how much trouble and bother you are making yourselves for the years to come.

In conclusion, I would advise deferring the uniting of your bees until we have several cold rainy days, in Oct., for instance, on which bees will not fly. Then proceed as directed. If you have followed the advice I have given, you will have little uniting to do, except with the queen rearing nuclei; and with these, you have only to take the hives away, and set the frames in the hive below, when you are done with them. If the hive below is a strong one, as it should of course be, just set the frames from the nucleus into the upper story, until all the brood has hatched. If you wish to make a

colony of the various nuclei, collect them during a cold day, and put them all into one hive. If you have bees from 3 or 4, they will unite better than if they came from only two hives, and you will seldom see a bee go back to his old home. A beginner should beware of having many weak colonies in the fall, to be united. It is much safer, to have them all strong and ready for winter, long before winter comes.

UNITING NEW SWARMS.

This is so easily done, that I hardly need give directions: in fact, if two swarms come out at the same time, they are almost sure to unite, and I do not know that I ever heard of two such swarms quarreling. One of the queens will very soon be killed, but you may easily find the extra one, by looking for the ball of bees that will be found clinging about her, very soon after the bees have been joined together. A swarm can almost always be given without trouble, to any swarm that has come out the day previous, and if you will take the trouble to watch them a little, you may unite any swarm with any other new swarm, even if it came out a week or more before. Smoke them when inclined to fight, as I told you before, and make them be good to the new comers.

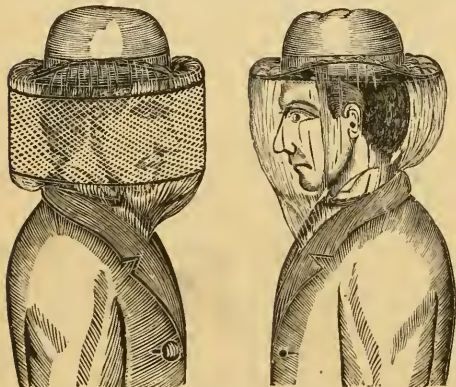
UNITING BEES IN THE SPRING.

Since our spring dwindling troubles, it has been quite customary to unite a stock that has become queenless to one having a queen, or to unite two or more weak stocks, to enable them to go through the spring months. The process is much like uniting in the fall. Lift out the frames and put them together, watching to see that they are friendly to the new comers. Bees are often united in the spring for the purpose of securing great results in honey, and by uniting the bees and brood, great amounts may be obtained from what might be called a single swarm.

VEILS. The use of a veil over the face will often give a beginner a sense of security that will enable him to work to much better advantage than he would, if continually in fear of every bee that chanced to buzz near him. I well remember the long breath of relief which I drew, when first safely ensconced in the wire cloth fixture that Langstroth describes and recommends in his book. It was so ponderous and unwieldy, that a friend who had come to see my bees, named it the "bird cage" when he volunteered to help me introduce my first Italian queen, if I would furnish him with one like my own, to put over his head. After a little practice and

experience, and a more thorough acquaintance with bees, veils of all kinds are almost always laid aside; still, as beginners invariably want them, it may be well to give the matter some consideration.

There are two great objections to the use of veils; one is that they necessarily obstruct the vision more or less, and the other is that they obstruct the free circulation of air, which is so desirable in hot weather, and thus tend to make the wearer sweaty, uncomfortable, and perhaps nervous and irritable. I need hardly say that one who handles bees needs to keep "cool," in more senses than one, and he also wants the free and unobstructed use of all his faculties. Many years ago, I advised, instead of the wire cloth bee hat, a veil made of black tarleton, with a rubber cord put in the top, to be slipped over the hat, and the lower ends to be tucked inside the collar, as shown in the cut below.



WIRE CLOTH AND LACE BEE VEILS.

After a while, I found a fine kind of silk lace, called Brussels net, that obstructs the vision much less than the tarleton does, or wire cloth either; but as this is quite expensive, we use it for only that portion of the veil that comes directly in front of the eyes, and these are the veils which we have used for the past half dozen years perhaps. As the tarleton is not a very strong fabric, we have quite recently used in its place, black grenadine. I do not myself use a veil at all, or at least very seldom, preferring the chance of an occasional sting, to having my eyesight obstructed and being hampered with any unnecessary clothing, when working in the hot sun. Within the past year, several attempts have been made to improve veils on both the points I have mentioned. The principal point where clear vision is demanded is in looking for eggs, in old, dark combs. With a veil, you might decide that your queens had not commenced laying, being

unable to detect the tiny speck of an egg, at the bottom of the cells, but with the veil removed, you would be able to see the eggs at once. A piece of glass might be framed and sewed into the veil just before the eyes, but it would be in danger of being broken. To remedy this difficulty, Mr. A. Nickerson, of Norwalk, Conn., has suggested a thin sheet of mica, such as is used for stove fronts. This gives a very clear vision, when it is perfectly clean, but judging from the way in which most of the A B C class manage, I should expect it very soon to get so soiled, that the wire cloth or lace would be much the clearer medium to see eggs through. The latest idea is a wire cloth with meshes just as large as they possibly can be without admitting a bee, and made of very fine hair wire. It is found by experiment that the wire, lace, or whatever else be used, should be black, rather than any other color. I am at present taking steps to have a wire cloth of this kind made. The difficulty seems to be in having a durable wire cloth, with such fine wire, and so large a mesh. Such wire cloth, besides being cooler than any of the other fabrics used, would be much stronger, and as a veil is in constant danger of being caught and torn on shrubbery, etc., to say nothing of the probability of a rent from the frantic efforts of the young apiarist to get a bee out, which may, by chance, get imprisoned inside, they really ought to be made of something as nearly like sheet iron, in strength, as possible. It may be well to state that no danger need be apprehended from a bee who gets inside, for all his energies are at once devoted to getting out, instead of to stinging, unless, by some chance, he should get pinched. A piece of wire cloth about 2½ feet long, by 9 inches wide, will be about right for most persons; I would have some soft fabric attached to it at the top to go around the hat, and also at the bottom, to tuck inside the collar. Be sure no loose ends of wire are left sticking out to catch and tear the cloth, for the annoyance of such things when one is writhing under the infliction of a sting, does not particularly contribute to the Christian frame of mind, which a bee keeper, above all other persons, should strive to carry constantly with him.

VENTILATION. I should be tempted to pass this subject by as one of little importance comparatively, were it to be considered only in the light in which it has been presented by the vendors of patent hives.

I do not mean that bees do not need ventilation, but that they get it, ordinarily,

through the entrance, and through the cracks and crevices which, as a general thing, are found in even the best made hives, providing the hive is properly constructed in other respects considered under the head of WINTERING. I do not believe in holes made in different portions of the hive, and covered with wire cloth, because the bees persistently wax the wire cloth over, just as soon as they get strong enough to be able to do so. If we omit the wire cloth, they will, in time, build the holes up, by much labor, with walls of propolis, until they have effectually stopped the inconvenient drafts that the improved (?) ventilators would admit at all times through the hive. During extremely hot weather, a powerful colony may need more air than is afforded by an ordinary entrance, especially, if the hive stands fully in the sun. In such a case, I would much prefer giving the bees shade, to cutting ventilation holes, which the bees will soon begin to use as entrances, and when the hot weather is over, and it is desirable to close these entrances, you confuse and annoy the bees by so doing. On this account, I would give all the ventilation that a strong colony might need to keep them inside at work in the boxes, by simply enlarging the entrance. This can be done very readily with the Simplicity hives, and I have frequently given them an entrance, under such circumstances, the whole width of the hive, and as much as two or three inches broad. The chaff hive with its entrance 8 inches by $\frac{3}{4}$, has always had all the ventilation it seemed to require, because the sun can never strike directly on the walls of the apartment containing the bees and honey. For the same reason, the house apiary with its 2 inch auger hole entrance has never required any further provision for ventilation. The chaff cushions placed over the bees in winter are kept over the surplus frames for the greater part of the time in summer, to confine the heat during cool nights, and from their porous nature, they allow of the escape of more or less air that comes in slowly through the entrance, the honey boxes having no other covering than the broad frames that hold the sections and these same chaff cushions. I have obtained more surplus honey with this arrangement, than with any other, and am firmly persuaded that a great loss of honey often results from allowing such a draft of air through the hive, that the bees cannot work the wax, unless during the extremely warm weather. To test this matter, I covered a large colony in the house apiary, with woolen blankets while they

were gathering clover honey, to induce them to remain in the boxes, even after the weather had turned quite cool. So long as the blankets remained on, the bees would remain in the boxes working wax; but as soon as the blankets were removed, at each time the experiment was tried, they retreated to the body of the hive. The same thing was tried with thin walled hives out of doors.

SMOTHERING BEES BY CLOSING THE ENTRANCE.

Although bees will make out to get along, even with a very small entrance, we should be very careful about closing the entrance entirely, in warm weather, even for only a few minutes. Many are the reports we get almost every season, of bees destroyed by simply closing their entrance, while undertaking to stop their swarming for a few minutes, until some other colony can be attended to. See SWARMING, ENTRANCES, and ROBBING, especially the last head, *How to Stop Robbing*.

When bees have the swarming fever, as a general thing, they are gorged with honey, and in a feverish state. They are like a man who has been taking violent exercise after a hearty meal, and require more than an ordinary amount of air. Their breathing tubes are in different parts of the body, principally under the wings, and as soon as the entrance is closed, they crowd about it, and when the heat of so many becomes suffocating, as it will in a very few minutes, the honey is involuntarily discharged, wetting themselves and their companions, and most effectually closing their breathing tubes, in a way that causes death to ensue very quickly. I have known of heavy swarms being killed in the short space of fifteen minutes, when the hive was thus closed on them. The heat generated by the smothering mass will often be great enough to melt down the combs, enveloping bees, brood, honey, and all, in a mass almost scalding hot. Bees are sometimes smothered in this way, in extremely hot weather, even when they have very large openings covered with wire cloth. In fact, I have once or twice had bees, when shipped by R. R., in July and August, get hot and smother, when the whole top of the hive was covered with wire cloth. I took a lesson from this, and put wire cloth over both top and bottom of the hive, and then put inch strips across, so the hive could not be set down in such a way as to cover the bottom, and have had no more smothering since, while being shipped. When thus prepared, I have sent the heaviest colonies, during the

hottest of summer weather, with hives full of honey, and had no trouble. See MOVING BEES.

HOW THE BEES DO THEIR OWN VENTILATING.

If you watch a colony of bees during a warm day, you will see rows of bees standing around the entrance, and clear inside of the hive, with their heads all one way, all making their wings go in a peculiar manner, much as they do in flying; but instead of propelling their bodies along, they propel the air behind them, and a pretty strong "blow" they get up, too, as you may tell by holding your hand near them. Well, if the air is very hot and close inside the hive, so much so that there is danger of the combs melting down, they will manage so as to send cooling currents clear to the farthest parts of the hive, and even up a small hole into honey boxes, where honey boxes are made after such old fashioned patterns. This idea is not by any means new, and those who have invented patent ventilators will tell us with a very fair show of reason, how many bees are thus employed blowing through the hive, that might just as well be out in the fields gathering honey. I once thought so, and that ventilators were needed, but after watching the matter longer I concluded the harm done by excessive heat was far less than that from cold drafts when they were not needed, and that it is better to let a few of the bees waste some time in the middle of the day, than to have comb building stopped entirely at night, on account of the drafts given by these thoroughly ventilated hives. The most prosperous colony I ever owned was one that was so completely enveloped in chaff, that they sent a stream of warm air out of their hive, during frosty nights in March, strong enough to melt the frost about one side of the entrance. Of course, a stream of cold air went in at the opposite side, as fast as the warm air went out. When I can get a hive into this condition of things, they always prosper, and it is on this account, that I would have no other arrangement for ventilation, than that furnished by the entrance.

VENTILATING QUEEN CAGES DURING SHIPMENT.

This is a very simple matter, during quite warm weather, for all we have to do, is to have a broad surface of wire cloth, and they will then be sure to have enough air. When queens are to be shipped during cool weather, it is desirable to have them tucked up as warmly as may be, and still have all the air

they need. Wood for cages is much better than metals, because it is a non-conductor of heat, and also because it prevents stickiness from their food by absorbing portions that the metal would not absorb. If the bees or queens become daubed, they very quickly suffocate, for the reasons I have given above.

VINEGAR. This seems to merit a place in our book as being one of the legitimate products of honey, and, doubtless, in many localities, it may be profitably manufactured, and sold as honey vinegar; especially, since the recent low prices of extracted honey. As I have had but little practical experience in making vinegar from honey, I give you the following letters which have appeared in the back volumes of GLEANINGS.

"Some one inquired whether honey vinegar is good or not. I will say yes; the best there is made. It will not die or lose its strength like most other vinegars, and you can have light or dark vinegar as you take light or dark honey to make it from. You can make what is called sweet pickles with it without any fear of spoiling. Last season a neighbor's family bought honey vinegar of me to do their choice pickling with when they had cider vinegar of their own make, as it was so much better, they said, than cider. I cannot give any rule for making it, as I have made it from the washings of vessels used in extracting, and of the cappings after the honey was pretty well drained out, but there has got to be such a demand for it in our neighborhood that I will have to make some from the clear honey this year."

R. R. MURPHY.

Fulton, Ills., May 6, '76.

I can give my testimony in favor of honey vinegar. We have used no other for two years, and nearly every one who tastes our pickles asks my wife for her receipt for making them. When told that we used nothing but honey vinegar, they are surprised, and say that they have always heard it would not keep pickles. The only trouble that we have had is, it keeps getting stronger and stronger, and we have to occasionally put in some water. As we have only used the waste honey from extracting, we cannot give the proportions of honey and water, but usually have it too sweet at first, and have to add more water. If it does not sour enough, we put it in a keg and set it in the sun with a black junk bottle in the bung. Do you think the bottle has any thing to do with the circulation of air? I have thought it might.

G. W. GATES.

Bartlett, Tenn., May 29, '76.

Another friend, H. A. Palmer, of Madora, Iowa, says, "One lb. of honey will make 3 gallons of better vinegar than one can buy."

SINCE so much has been said in back No's. about foot power saws with a slow motion, and more power for ripping thick stuff, our friends, Barnes Bros., have made quite an improvement on their saw by putting a larger band wheel on the saw arbor. This wheel is to be used for slow speed with power, and the old one, for high speed. The price of the new wheel and belt is \$1.00, and we can send it by mail, where desired, for an addition of 64c. for postage. We are using one of the machines with the improvement, and find it a very great advantage in ripping.

Heads of Grain, From Different Fields.

DIVISION BOARDS.

I WISH you would state in GLEANINGS, whether or not I could manufacture division boards bound on the edges with cloth, rubber, &c. &c., without infringing on any one's patent. If there is really a patent on it, please give us the patentee's name and address.

I have come to the conclusion that a hive, to be perfect, must have a good division board, one that will fit the hive tightly, preventing any heat escaping from the bees. I have a plan for an adjustable board that will vary itself to fit any variation in the size of the hives. Who will be first to get up a really good adjustable board, smooth on both sides? I know from my experience that such is needed in the fall in preparing bees for winter, giving them only what combs the colony can cover. They are useful in giving a swarm, to give them only what frames they will build combs in, causing them to build their combs straight and true, and down to the bottom-bars. They are very handy after a long, severe, cold winter like the past, to contract the size of hives having weak colonies in them, also to divide one or more combs from the main colony, to get queen cells built, &c., &c. We think them a necessity and will use them in some shape; so give us all the information you can about patents on them.

JOS. M. BROOKS.

Columbus, Ind., May 5th, 1879.

There seems to be a constant stream of inquiries in regard to whether there be a patent on division boards, and I presume it all comes from the absurd claims of Mitchell and his agents. The matter has been so fully discussed, and Mitchell so often shown up, it hardly seems necessary to take further space in regard to it. Mitchell has a patent on some iron lugs applied to division boards, which neither he nor any body else, so far as I know, have ever used. If Mitchell threatens prosecution, tell him to prosecute me, for I have been making and selling cloth lined division boards for years. I heartily agree with you in regard to the value of a good division board, friend B.

THE SUGAR AND WATER FEEDER.

I now feel quite confident that the raw sugar and bottle feeder is a perfect success. The one that I am using is the same size as the one I sent you, and in 5 days of last week they emptied the one box of pure sugar and also used up all the water, and during the same time, they only used about 1-6 of the mixed sugar and flour. They sometimes work almost entirely on the pure sugar, and at other times just the reverse. I have been trying to find out the cause or circumstances by which they are governed in making their changes from one to the other, but have been unable to arrive at any positive conclusion. I find now, since they are getting honey from the maple and other blossoms, they have abandoned the sugar entirely, but continued to work on the mixture, and keep the top surface quite wet with the water from the bottle. A neighbor, an old beekeeper, examined the feeder to day, and he at once pronounced it the greatest advancement he had seen for several years, in things pertaining to beekeeping. It remains yet to determine the exact relative proportions of the boxes and bottle, that they may all be replenished at the same time. I think the one box should be about 5 inches deep for pure sugar, and the other about 1½ inches deep, and the bottle, I think, ought to hold from 6 to 8 ounces.

Oxford, O., April 26th, '79,

D. A. McCORD.

AN A B C SCHOLAR'S EXPERIENCE.

In March, 1878, I saw your paper at a friend's, and was much interested in the new way of keeping bees, and thought I would try it. I went to work and made hives with movable frames, and in May, I

transferred 6 swarms. I had good success, and during the summer I divided and increased them to 13. I sent to friend Nellis, and got an Italian queen, and introduced her, and in the fall I had a strong Italian swarm. I commenced the winter with 13 good swarms, but all died during the winter except 2 swarms of black bees.

I have kept bees a great many years, commencing first when a young man in Scotland. I came to America in 1851, and have kept some bees ever since, but never lost as many as I have the past winter.

JOHN TURNBULL.

Downsville, N. Y., April 26, '78.

THREE SWARMS IN THREE CONSECUTIVE DAYS.

I have recently met with something, to me, unknown before; viz., one hive of bees sending out 3 swarms in 3 consecutive days: one on Saturday, one on Sunday, and one to-day, Monday. There is no mistake about it, for I was within 10 ft. of the hive each time, when the swarm came out, and saw it and now have all three in hives at work. These were all good sized swarms, and came from a 2 story Langstroth.

I have met with an extraordinary streak of luck in getting swarms this season; I get one-half for hiving one apiary, and half of the new swarms of an other for furnishing *bar* hives. Thus, you see, if I can only hold my good fortune, I will have a start without much outlay. I have 14 swarms to date, and think I will close with about 20 or 25 swarms, all of which I wish put into good, close, well made, frame hives.

PINNEO HURD.

Dermott, Ark., April 23, 1879.

Your case is not very difficult to explain. Perhaps the old queen failed, and a lot of queen cells were raised. If in the swarming season, the new swarms would all have young queens like second swarms, and hence might come off one each day. The hive probably contained a large amount of brood or there would not be bees enough to form 3 swarms in so short a time. Your plan of starting an apiary is certainly a most fortunate one, and you should get rich fast, with such a chance, especially if bees would make one rich. Like other riches, they sometimes fly away.

TRANSFERRING, AND HOW TO KEEP ROBBERS AWAY.

I lost "nary" stand of bees last winter; all came through in good fix. I have 35 stands all Italianized but a few. You can transfer bees any time of the year, honey or no honey. Transfer late in the evening, and early next morning move them onto a clean bench, stop all cracks, then wet a rag with coal oil, and rub it on the under edge of the lid, around all cracks, and on the front of bottom board. I transferred this spring and the bees never found it out. Be sure to keep all honey cleaned up. Bees carried in pollen every month last winter, and are swarming now. The excitement on bee-culture is past here.

R. DAVENPORT.

Richland Springs, San Saba Co., Tex., Apr. 18, '79.

Your remarks about keeping all the honey nicely cleaned up, friend D., I agree with exactly; and perhaps I may agree with you in regard to using coal oil to drive the robbers away, after I have tried it, but I am a little inclined to fear it might induce your transferred colony to desert their hive.

WHERE TO PLANT THE GRAPE VINES FOR SHADE.

You tell everyone to plant grape vines on the south side of hive. That won't do for southern latitudes, as the sun rises in the north east, and sets in the north west, and is nearly vertical at meridian. Our shade must be on the west side of the hive to protect it during the long sweltering evenings. The mornings are not uncomfortable. For the same reasons, our hives do better if they face the south. I am using Simplicities, and lost 2 out of 16, by pure neglect. My neighbors using boxes lost nearly all. There surely is protection in regular parallel cards of comb.

H. A. MOODY.

Longtown, Miss.

No doubt, you are right, friend M. The hottest part of the day here is about 3 o'clock usually, and that would seem to indicate a position midway between south and east. Our vines usually become so bushy near the tops, in July, that it is an easy matter to let them throw out large leaves at the west end of the trellis, which will keep off the afternoon rays.

CHAFF HIVES FOR WINTERING IN WIS.

The loss of bees in this locality is large; one-half or more, is dead. Thanks to you for your description of chaff hives. Last fall, I thought I could make a chaff hive, so I went to work. I made enough to hold all of my bees, by putting two swarms in each hive. Perhaps this will explain to friend Martin, or he can get an idea how to use the chaff as a double hive. When I made my hives I bored a hole on the back through both the outer and inner shells, with a $\frac{1\frac{1}{2}}$ inch auger, then made a plug with $\frac{1}{2}$ in. hole through the centre, and drove this in tight, then put in a very thin board on top of brood frames, $\frac{1}{4}$ inch above them, took racks from my Langstroth hive, bees and all, and placed them on top, covered with a quilt, and chaff over that.

I did not lose one quart of bees in all. All the hives are now full of bees. These old box hive keepers laughed at me, last fall, for fixing up my bees so, but they have changed their tune now; they have no bees to look at only as they stop and look at mine. Oh, they say, if I had done as you told me to do, invested one dollar for GLEANINGS, we would have been all right. And so it is; persons without any knowledge of bees cannot be successful. Italians stood the cold here, just as well as the black bees. O. A. SIESSON.

Mindoro, Wis., May 12, 1879.

SPRING Dwindling.

Neighbor Hathaway is on his back with lung fever. His bees have spring dwindling bad; about half of the stocks are gone up. I have lost one. I have made the subject a study and think it is no disease, but that it is only old bees dying faster than they are replaced with young ones, whatever may be the cause of their not raising brood. Those of my bees that came out of pit with brood in all stages, and plenty of it, don't dwindle.

Friend Stewart, of Orion, has abandoned frame hives as a nuisance, after a partial trial of one season. He is authority on wintering bees. His 75 stocks, wintered out of doors, year after year, with no sign of dwindling, dysentery, robbing, desertion, or freezing, is a *knock down* argument no one can get over. His hives, if you remember, are 19 inches every way, *inside*; box hives filled with brush. The secret of his success can be reached with frame hives, viz., large hives, absolutely no upward ventilation, porous or otherwise, combs attached to sides of hive, plenty of stores, and the brush securing many winter passages. His bees give him a swarm once in 2 years, and 75 or 80 lbs. honey the alternate year. R. L. JOINER.

Wyoming, Wis., May 10th, 1879.

Messrs. Barnes:—I am well pleased with the new improvement of the large pulley on the end of the mandrel of the Barnes' foot-power saw. I can saw as much 2 inch stuff, and as fast, as I could $\frac{3}{4}$ inch stuff with the other pulley. Wm. B. SNIDER.

Dallas City, Ills., May 6th, 1879.

CHAFF FOR WINTERING, MATS, ETC.

Bees have wintered badly here, and heavy losses are reported; but, thanks to the liberal use of chaff bags and division boards, my own have come through safely, and with no loss not resulting from loss of queens, and robbing, before fruit bloom. No effort was made to stimulate, for it seems very poor policy to build up too early, where an increased number of colonies is not desired; for it involves a large cost to keep an army in inactivity. Last year the honey flow began June 25th, and then I had colonies that would fill a two story L. hive. The enameled cloth, though the best we have had so far, *will*, to some extent, be perforated. I think your new mat is going to prove a valuable acquisition. It seems to admirably meet the requirements. I am trying it and will report. J. W. PORTER.

Charlottesville, Va., May 12th, 1879.

SMOKER FUEL, ETC.

Some time ago, Dr. Milwee, of Greenwood, ordered two smokers; one for him, and one for me. I have never told you how I liked it. I see some complaint of them, but I have no complaints to make of mine. I use rotten elm wood, and it works well. I was discouraged at first, tried corn cobs, and it was worse than nothing, but after I got the rotten elm, had no more trouble.

Now for the hives he ordered for us. I think they are the nicest thing in the way of bee hives I ever saw. Every body is pleased that see them. The sections are so nice.

SALT TO KEEP AWAY MOTH WORMS.

Does fine salt, sprinkled on the bottom board of a hive, do any good toward destroying worms, in case you are not able to Italianize. I see a worm now and then, on the bottom board of my hives, and have sprinkled fine salt on the bottom of those hives, and am under the impression it has done good, but am not certain. Hope this letter will not worry your patience, and hope you will answer the questions, though they may appear trivial to you.

Greenwood, S. C., May 9, '79.

J. D. FOOSHE.

If the salt was where it would get wet, so as to soak the worms in strong brine, it might possibly harm them, but I do not think dry salt would have any effect whatever. They are pretty tenacious of life, and I am not sure but they would stand the brine unharmed.

BINGHAM'S PATENT ON SMOKERS.

Seeing it stated in last GLEANINGS that the Scovill smoker "is no infringement," I wish to say that there must be a great mistake somewhere. The A. B. J. pronounced it "an infringement," and I sent for a smoker, and I think it is not only an infringement, but a substantial copy of my smoker. I trust you will do your readers the favor and kindness of publishing my 4th claim, or this letter, (you have my claims I believe), and greatly oblige me.

Osseo, Mich., May 10, '79.

T. F. BINGHAM.

Beg pardon. If the A. B. J. said it was an infringement, I did not see it. Aren't you getting a little wild, friend B., in talking about infringements? According to your patent claims, Mr. L. C. Root's new smoker is a point blank infringement, yet the patent office did not hesitate at all in granting him a patent, if I am correct. Friend Scoville might get a patent on *his* without the least trouble in the world, and then the patent office would tell you, if you wanted your "rights," to fight it out. There are plenty of patent office attorneys waiting for a job.

Since the matter has come up, permit me to protest a little against the way in which you have attempted to "gobble" the cold blast arrangement, and friend Sutcliffe's rag burning cartridge. Quite a number have written in good faith, to know if you had patented Corey's cold blast arrangement. I have kept still, because it pains me to do or say anything more that may stir up trouble. I do not know but that I have erred in giving place to this. There are hundreds now in the field, improving implements for bee culture, and the great mass of them bring forward their offerings with joy and gladness, telling the rest to make use of them or improve them as they choose. The pages of GLEANINGS are always open to these, but I can not consistently give room to the few who would say, "Here! you let that alone, its mine, I got it *patented*!"

There are three, if not four, patents on the section boxes in common use; why are none of these patents respected? Simply,

because the idea is so (I beg pardon), ridiculous, of *patenting* such a thing. Friend Scovell's smoker *may* be an infringement in that way. Friend Bingham, do you want to be classed with those who are going about threatening law suits, and exacting damages from those who, they claim, trespass on their "rights?"

FDN. WITH "SQUARE" CELLS.

Please ask bee-keepers to try the experiment of making fdn. with square cells, (25 to the square in.), and see which the bees will use quickest. I took my saw and two pieces of pine boards, (pine makes the best dipping sheets I can get), and cut both ways across the face, and let them soak a little while in water; then dip one twice in melted wax, lay it on the other, and press them together with a quick motion, and you will have a sheet of the nicest little squares you ever saw. I put some in a hive 2 days ago, and yesterday they were $\frac{3}{4}$ inch long square still, I am anxious to see if the queen will put eggs in them, and if the bees will be all square. Who else will try the experiment and report results?

J. F. LAFFERTY.

Martinsville, Clark Co., Ill., May 15, '79.

Well, I declare, friend L., if you are not a genius! If flat bottomed fdn. is patentable, (although no one has got a patent on it yet, as far as I can discover), certainly square cells are patentable. I suppose of course, the bees would have them 6 sided by the time they were built out and filled with brood. When you get some finished comb of that kind, please send us a piece, and we will report.

BEEES BY THE POUND.

I like the idea of selling bees by the lb. I had a large, double swarm yesterday, which I think must have weighed 20 lbs. The idea of getting \$20.00 for them instead of selling them for \$1.00, as I have been doing the last two years, sounds something like "Blessed Bees." Even in GLEANINGS "There's no place like 'HOMES.'" D. MCKENZIE.

Carrollton P. O., La., May 14, 1879.

CHAFF FOR WINTERING.

My bees have wintered on summer stands, with chaff, better than any in this part of the country. One large bee-keeper who came here and bought some bees from me, says my bees are the healthiest and cleanest he has seen this year. He had 200 hives of bees last fall, and has but 9 doubtful ones left, all told. The loss, he thinks, is over \$1000. I have only lost one out of 22, and that swarmed out and went in with another hive this spring. RICHARD NYE.

Forestville, Mich., May 12, 1879.

P. S.—Bee-keepers have lost very heavily in this vicinity this year, I think 90 per cent, not counting me in, have perished.

MR. LANGSTROTH, SENDING QUEENS BY MAIL, ETC.

Our friend, Mr. Langstroth, is quite poorly again with his old complaint. He desired me to write you in regard to our scheme of sending queens by mail. Whether you would send a cage, and write to the Post Master General, or whether I shall, and if I do, have you any suggestions to make as to what I had better say to him? I sent a single queen by express, to-day, which did not reach its destination by 8 miles, and would have went right there, by mail. The P. M. G. might issue an order to receive them only in those last cages, without glass, or water, except in a sponge or in a tin tube, and candy to feed on. Whatever is done will have to be done soon.

Oxford, O., May 10, '79.

D. A. MCCORD.

We are all deeply pained, friend M., to learn of Mr. L.'s illness again. As I have once sent a cage containing candy only, to the P. M. G., with all I could say on the subject, I do not know that I have anything more to offer. Queens are now sent by mail in a registered package, by some of our bee-keepers, but after the experience I have

had with losses of queens, and queens that once lay, I now prefer to send them by express in the new section box cage described in this No., with plenty of bees, plenty of honey, and plenty of water. By the way, if we can devise some means to prevent the occasional swarming out, we could raise the queens, and get them fertilized in these same section box cages. When laying, send the bees, queen, hive and all.

COMBS BUILT CROSSWISE, WHAT TO DO.

Last winter I purchased 5 bee hives, 4 Quinby, and 1 box hive. They are not Italians. I tried to take out the frames, but found the comb was united and of an irregular shape. I tried cutting them apart, but the honey ran out, and some of the comb broke loose from the frames and made a great muss. In such a case, how can I look for bee moth, as there seems to be some? also, find the queen to clip her wings?

The soft and hard maple and poplar are first in bloom here. I notice they work a great deal on them, especially soft maple. Do they obtain honey or pollen? Does the lilac yield much honey?

BASSWOOD LUMBER FOR HIVES.

Will well seasoned basswood lumber answer for making movable frame bee hives, if carefully painted and roofed with pine?

HONEY FROM PEAS.

Do field peas yield much honey?

Franconia, Minn., May 4, '79.

JAS. P. SMITH.

I have no doubt, friend S., you had a muss in trying to get the frames apart, with the combs built as you say. You have a job of transferring on hand, and very troublesome it is sometimes. You must cut each comb loose, all around, take it out and lay it down carefully, without breaking. When you can get one frame free, fix in the comb precisely as I have directed in transferring. Go through with the whole in this way, and then make up your mind it will be cheaper after this, to watch your bees, and *make* them build their combs true in the frames, in the first place.

I have never known bees to notice the lilac, nor peas either, unless it is the variety of peas called vetches. Much honey is sometimes obtained from these in Germany, where they are raised extensively for stock. Basswood does well for sections, but is considered poor lumber for hives, on account of its great propensity to shrink and swell, and warp.

WINTERING, THICKNESS OF CHAFF, A HIVE IN-DOORS, ETC.

Bees came through well. Were mostly wintered in my chaff houses. They are stronger now than I ever saw them in June. This is the second winter; '77 and '78 was a good winter, but '78 and '79 was as hard a winter as is often seen. Most of the bees about here are *non est*. My good success with chaff houses convinces me that this is the best way to winter in this cold climate. I wintered 10 in cellar. All right, but not as strong as the ones wintered out doors. I had 1 hive of Italians (late) that I kept in the room with us all winter. I made a wire hive and put in front, put boxes of honey over, and any day could see the "little dears." Well, they bred all winter. Came through right; not a spoonful died, with 4 to 1 increase, at least; are strong, and now on their stand out doors. If I can go through the winters as well as the last one, I shall be satisfied. I have a quantity of fdn. made by Mrs. Dunham. Like it very much. The other kinds will break and bother, are pressed too hard, and not enough wax in the walls. Fdn. is to the bee-keeper what the seeder and reaper is to the farmer. Now winter bees well and without loss, movable frames, fdn., care and attention, and then you have it sure.

Embarrass, Wis., May 13, '79.

J. E. BREED.

REPORT FROM AN A B C SCHOLAR.

I see it is quite common to report progress, through the GLEANINGS, especially by A B C scholars. One year ago I bought of J. L. Lewis, Windsor, Mich., two colonies, one Italian and one hybrid. They came by express when cherries were in full bloom. There was no money in either. In September following, my report stood as follows:

Good working colonies.....	8
Sold.....	1
Gone to the woods.....	2

11

At this writing I have six; five splendid, and one weak. I wintered as follows:

PUTTING A SMALL NUMBER OF COLONIES IN A SPECIAL REPOSITORY.

I built a house double, and filled it with sawdust, in which I put 3 swarms. One of them died in February leaving fully 20 lbs. of honey, comb bright and dry. I lost one swarm, before winter set in, which left fully 25 lbs. of honey, comb bright and new. The weak colony I have was wintered in this house. The other four I inclosed in large dry goods boxes with straw and chaff over and around them. A good shingled roof fitted to each box so the straw and chaff came out as dry (one week ago) as when it was put in. The four, and one of those in the house are as good as could be desired, being fully at work as in midsummer. I think they are working on soft maple; they have been very busy for nearly two weeks. Will some one inform me (through GLEANINGS) whether or not huckleberry blossoms are honey producing flowers? I have acres of them near my place. More anon. A. R. WILLIAMS.

Muskegon, Mich., May, 1879.

If I am correct, a house packed with sawdust for wintering bees, can hardly succeed unless a large number of colonies are kept in it, say 40 or 50. With only 3, they would be deprived of the sun and have none of the benefits of the accumulative warmth of a large number of colonies together. With small apiaries, the out door packing will certainly give the best results I think, unless we have a good cellar, dry and warm, and even then, there are serious disadvantages to be taken into consideration.

SMOKERS, MATS, ETC.

I have 21 stands left out of 40, and all but 2 had plenty of honey if not too much. I was watching GLEANINGS to see some complaint of Clark's cold smoker, but see none. Mine did not make smoke enough to suit me, so I made some holes in the tube with an awl, and I think it will now make all the smoke I want; so you can't put me in the *Groulery*. The mat I like, but would prefer the slats running crosswise the frames instead of lengthwise. I made one from yours as a pattern, with comb guides I had left. I think they are much better than enameled cloth for winter, under cushions. The enameled cloth holds all the moisture. My bees were all on their summer stands, with wind break. So far as I have heard, my loss has been the greatest in the county. Some haven't lost any even in box hives.

ABRAM GRABILL.

Oakley, Ill., April 29, '79.

The strips for the mats can be made to run across the frames, if you choose, but I do not see how you can then fold it smaller for a nucleus, or for getting a bee-tight fit, when you contract the hive by division boards. Comb guides make very good slats for the purpose.

A GOOD REPORT FROM MITCHELL'S HIVE.

I have 75 stands of bees to transfer. I shall commence to-morrow, and am going to use Mitchell's Patent Hive. I have 100 hives made. I had several stocks in the Mitchell hive last year and the year before, and thought I would make a business of it. If I can succeed as well with a large amount, as I did with a small one, I can do well at the business. I had stands last year from which I took 200 lb. of surplus honey, and if I can make 100 stands turn

out that amount, I think bee business will pay. My bees came through the winter without the loss of one. I bought one of your smokers last year, and like it very much. I think it the best I have ever seen.

E. A. SUMMERS.

Champaign, Ill., May 4, 1879.

I am very glad to get such a good report of the Mitchell hive, but it is in truth no more his than your own, friend S. It is simply the long hive that so many invested in and afterward discarded, 5 or 6 years ago.

ONE OF THE A B C CLASS.

I have 6 swarms wintered on summer stands, which came through all right. I am satisfied that if the bees are all right in the fall, by removing one or two frames on each side, and then placing over them a quilt which will come down to the bottom of the hive, there need be no fear of their freezing.

Just before the season closed last summer, I found a small swarm, put them in a new L. hive, with fdm., and gave them half filled sections to empty of honey, for they could gather but little. They only partly drew out 5 frames. I fed them again early this spring, and now the hive is half full of young, smart bees. I am only a greenhorn, but one swarm earned me \$40.00 last year. I don't know as you have time or care to hear from strangers, but I don't charge any thing for writing.

Mitchell, from Sandusky, has an agent here for a patent hive, but I don't see that it is enough better than the L. to pay for changing. R. T. CHAPMAN.

Cleveland, O., April 26, '79.

I am always glad to hear from strangers, friend C., especially when they belong to the A B C class. In fact, I have been accused of being partial to those having only a half dozen colonies or less. Perhaps I am, but you see these older fellows can take care of themselves. A beginner with a few colonies seems to have a zeal and enthusiasm that those who number their colonies by the hundreds do not, and perhaps this, many times, is more important than even great wisdom and experience. One who does all he knows how to do, even though he be in his A B C, is a safer man than one who knows a great deal, and is too lazy to put it into practice. Now you are to be as faithful with each one of the six, as you were with the one that gave you \$40.

WILL TWO QUEENS CAUSE BEES TO ABSCOND?

My bees have come through the winter in good condition. All but 2 were strong. I lost those 2 rather foolishly perhaps, by uniting them without taking away either queen, and they absconded. I have 16 left.

ABOUT FEEDING WHEN BEES ARE GETTING PLENTY OF HONEY AND POLLEN.

You recommend feeding candy made of sugar and flour, to promote brood rearing; do you think the flour necessary when bees are bringing in pollen plentifully? When bees have plenty of honey, don't you think that to uncap one or more outside combs will answer as well for breeding purposes as feeding candy? In feeding a frame of candy where do you place it? near the outside or nearer the centre of hive, when rapid breeding is the only object? When a colony is strong and has plenty of honey and pollen or is bringing in pollen rapidly, do you think feeding of much advantage?

MATS FOR COVERING THE FRAMES.

I notice you advertise mats made of thin bass-wood; will not the bees cover these with propolis after a while as badly as the quilts, and gnaw off the twine as easily as the enameled cloth?

ONE OR TWO TIERS OF SECTIONS.

Do you think, judging from experience, that bees will fill both tiers of sections as readily as if but one tier was used in a shallower frame? and do you have your frame of sections started at the side or over the brood nest?

S. H. MALLORY.

Decatur, Mich., April 26, 1879.

I do not think the uniting or the two queens had anything to do with the swarming out. The bees had probably decided on so doing before you united them. I do not think any artificial pollen equal to the natural, and I do not believe they will, as a general thing, take the flour candy when they are getting new pollen and honey. Uncapping heavy combs, I think as good a way of feeding as any, provided there is honey enough. The frame of candy should always be put near the centre of the brood nest. When bees are gathering honey and pollen, they are doing as well as they can do, and to feed or attempt to feed at such times would do harm, unless the accumulations of the day are not as great as they should be, when a little may be given at night. The purpose of feeding is only to fill up the gaps between natural sources, and to keep brood rearing going on uninterruptedly the whole warm season through. I expect the mats *will* be covered with propolis in time, but after they are so covered, they are as good as the enameled cloth, and proof against biting through. They also close the hive bee tight, at all times, and cannot shrink and pucker up, as do cloth covers. After the twine is covered with propolis, I do not expect the bees to bite through it. The matter of two tiers of boxes or only one will be most thoroughly tested with our new story and a half hives, this season. I think it will be shown, that the strength of the colony pretty nearly decides the question. Frames of sections at the sides of the brood are excellent for getting the bees started in the sections, and they may be finished out there, or put into the upper story to be filled and capped.

RAISING BEES IN DRONE COMB TO MAKE THEM LARGER.

I would like to know what it would cost, to get a machine to make comb as much larger than drone comb, as the drone comb is larger than the worker comb. I have full stocks of bees whose queens lay altogether in drone comb. I can send a queen in a nucleus hive, and warrant her to lay all her worker brood in drone comb, for \$50.00.

I never have used any of the *fdn.*, but have seen it used, and know it will work. I know it is a good thing if it is put to a good use. If I had a machine, I could breed up much faster. I know I can enlarge the black worker bee to work on red clover. You can see by the paper I will send you, that I have got the largest amount of honey from one stand of bees, and I have got the bees to do it. I have found a new method of improving the bee, and its size, but with a machine I can get along faster. I claim I can get them to the size of a bumble bee. You can see what I am after. J. ARCHER.

Santa Barbara, Cal., May 4, 1879.

I see what you are after, friend A., sure enough, but I have little faith in your project. Right before me lie a pair of dies that the clerks use for paper weights. They are for cells a size larger than drone *fdn.* The bees evidently considered them *sells*, for they got pretty badly disgusted, after trying in vain to make *something* out of such *fdn.*

I believe almost any queen will lay worker eggs in drone comb, if her hive contains nothing else, but I have always considered it a great waste, for I could see no difference in the size of the bees.

TRIALS OF AN A B C SCHOLAR.

I thought that I was somewhat of a bee-keeper, until I received your books, but found, upon an ex-

amination, that I hadn't yet started. I am using the Simplicity hive, and on the 23th of last April, I gave a freedman \$1.00 for a large swarm of bees that he found upon a bush in the woods, and after putting them into a nice new hive, and giving them frames from other hives, with sealed brood, eggs, and larvae, according to directions layed down in your A B C book, I thought that every thing was lovely. But alas! they came out as if confused, and went into the other hives, some in one and some in another. What do I lack now of being a bee-keeper? and what did I gain or lose by that operation? Bennett, Texas, May 9, '79. GEO. B. DEAN.

If the bees went into the other hives without being killed, you are all right, my friend, for you have got one more swarm, even if it is scattered about. Take combs from the strongest, and build it up again. I do not see that you lack anything of being a bee-keeper, unless it may be a queen to put with that new colony; eh?

THE NEW JERSEY LAW IN REGARD TO ADULTERATING HONEY.

AN ACT to protect the honey industry.

WHEREAS, The production of honey is an honest and honorable industry of respectable and fast growing importance in this state, the entire proceeds of which is clear gain to the state; and whereas, adulterations with inferior sweets, not gathered by bees, are manufactured and sold under the name of honey, to the great injury of the industry and to the deception of the consumer, if not to the injury of his health, therefore:

1. *Be it enacted by the Senate and General Assembly of the State of New Jersey*, That every person or persons who shall manufacture, sell or cause to be sold any article or substance having the semblance of honey, and yet not the real product of the hive, whether in shape of liquid or comb honey, shall to each package or vessel of such manufactured article or substance, affix on the outside of the package in a conspicuous place, a distinct printed or written label or brand stating that it is a mixture, and naming the constituent elements used, whether glucose, grape sugar or other adulterant; and every sale of such article or substance not so branded, marked or labeled is declared to be unlawful, and no action shall be maintained in any of the courts of this state to recover upon any contract for the sale of any such article or substance not so branded, marked or labeled.

2. *And be it enacted*, That every person who shall knowingly sell or offer to sell, or have in his or her possession with intent to sell, contrary to the provision of this act, any of the said article or substance required by the first section of this act to be branded, marked or labeled, as therein stated, not so branded, marked or labeled, shall for each such offence forfeit and pay a fine of one hundred dollars, to be recovered with costs in any of the courts of this state having cognizance thereof, in an action to be prosecuted by the district attorney in the name of the people, and the one-half of such recovery shall be paid to the informer and the residue shall be applied to the support of the poor in the county where such recovery is had.

3. *And be it enacted*, That every person who shall knowingly sell, or offer, or expose for sale, or who shall cause or procure to be sold, or offered or exposed for sale any article or substance required by the first section of this act to be branded, marked or labeled, not so branded, marked or labeled, shall be guilty of a misdemeanor, and on trial for such misdemeanor, proof of the sale, or offer or exposure alleged, shall be presumptive evidence of knowledge of the character of the article so sold or offered, and that the same was not branded, marked or labeled as required by this act.

4. *And be it enacted*, That this act shall take effect immediately.

If names are wanted for a petition for such a law in the state of Ohio, or any other state, GLEANINGS will do all in its power to furnish them.

OUR CARTOON FOR JUNE.

YOU see our friend has prepared himself well for the work, had his veil all tucked nicely about his neck, his smoker in good trim, and had even tied his trousers about his ankles, that there might be no hindrance from unlucky bees getting the impression that these openings were entrances to hives, and every thing seemed propitious as he started out on a fine May morning, filled with the very commendable idea of having *all* his bees on combs of a uniform size.



AN A B C SCHOLAR'S TRIALS IN TRANSFERRING.

Only a week before, a neighbor had transferred the hives you see over toward the fence, and the whole operation seemed easy and simple. Since then, however, the fruit bloom had vanished, and he had forgotten the injunction of the A B C book, to beware of trying to do such work, when the bees were not gathering honey. As he scattered his combs about, omitting to use a cloth to cover the exposed sweets, as advised in the book, the robbers began very quietly loading up, and before he knew it, stinging was the order of the day, in a way he had never quite experienced before. His dog, which had, until now, been very much interested in the proceeding, suddenly beat a retreat with a series of quick yelps; next a chicken that chanced to be near, started off with alacrity, and finally his friend who was present promised to see him again(?), and bid him "Good day" rather unceremoniously. He used his smoker, but they clung in frenzied rage to his trousers, stinging through, diving into his pockets and down his neck, until he, too, was compelled to retire from the field. While his friend is beating the air furiously at a little distance, an innocent passer by in the road has started his horse with a wonderful suddenness, and has apparently no intention at all, of stopping to recover the hat which he has knocked off, in trying to beat away the bees which have gone over the fence to attack him so furiously, when he "wan't doing nothin' at all."

MORAL.—If you do not want your town's people to vote you and your bees a nuisance, beware how you leave honey carelessly exposed, at a time when bees are gathering nothing.

P. S.—Our engraver says he thinks the man with the bee on his back must have been the minister, but I think he is mistaken.

SHADING BEE HIVES.

KILLING TWO BIRDS WITH ONE STONE.

ON page 124, of April No., friend Phelps speaks of shading hives with a tomato vine, trained on a trellis. Having noticed that the tomato is very easily "taught" to go in any way you want it to go, the idea at once occurred to me, of having them trained in the same way we do our grape vines, and seeing some fine plants down at my mother's, I begged one to be put under a course of instruction. That you may all try one, too, I give an engraving below, of how I expect it to look in a month or two.



TOMATO VINE TRAINED TO SHADE A BEE HIVE.

We want 2 posts, 2 slats, and 3 wires. I would have the top bar 3 feet long, and 4 feet above the ground. Make the plant throw out 4 branches, 2 on each side, and then pinch off all others. When any branch gets to the top of the stake, pinch it off. The fruit, having plenty of sun and light, will probably be very large, and very early. When you make a report of your hive, you can also make one of your tomato plant. Now, boys, who will beat me? If you will send me a photo of them when full of fruit, I will have the best one engraved.

P. S.—Tie the branches to the stakes with "pink ribbons;" or if that should not be in taste, will the *Ladies Department* suggest a better color?

If any body deserves to have trouble, it is the folks that *will* send bees and bees-wax, without putting their names on the boxes. They generally get it too.

It will hardly ever pay to send bees-wax by express. Go around to your neighbors, and scrape up 100 lbs. or a barrel, and then get a special rate on it by freight.

A GREAT many, in ordering dollar queens, say "Pick me out a nice one." My friends, who do you suppose wants those that are left, that are not nice? If you order dollar queens, you must take them just as they come.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POST-PAID.

MEDINA, JUNE 1, 1879.

For even Christ pleased not himself.—Rom. 15:3.

THE cold blast smoker business is getting to be quite an item. About a dozen hands are employed on them, and the sales are now something over a thousand per month.

OUR article on transferring should by good rights have been in the April No., but as the season is so backward, the directions will be in very good time for most of the northern states.

THERE are a few who will have it that it was grape sugar which caused the losses in bees during the past winter and spring. How about those who lost so heavily where no grape sugar was ever used?

WE can make sections of beautiful white bass-wood, ready to nail, without any dove-tailing, planned on one side and both edges, Simplicity size, for \$5.00 per thousand. Doolittle's size (the so called prize box, 5¼ wide, by 6¼ high), \$6.00 per thousand. These prices are for lots of not less than 500.

THE Los Angeles *Weekly Star* talks about us as follows:

GLEANINGS (May No.) contains a cut of "blasted hopes," which might serve as a portrayal of blasted hopes on the coast this season, but the face is hardly long enough to correctly represent a California bee-keeper this season. The face should look as if a 64 pounder were hanging to the chin to draw it out as long as an old fashioned bee-gum. Brother Root, if you did not intend it for us, it fits so well that we will accept it "as others see us."

I WISH to pay for all inventions sent me, of which I make use, but I have bought so many which I have never used, that I hope you will excuse me if I am a little slow hereafter, in deciding what I can pay for. I will pay friends Clark and Corry, \$25.00 each, for the features in their smokers, of which I have made use, if they will accept it. Were not the profits very close at the prices for which they are sold, I suppose I should do more.

I AM very happy to hear that both Mitchell and Mrs. Cotton seem to be doing something to straighten up their bad work. Whenever they make a satisfactory arrangement with those they owe, and do a fair and square business, I will, with pleasure, give one or both, a good advertisement free, for one year. The only candidate we have for the Humbug and Swindle Department is a "Crystal Honey" man hailing from 218 Fulton St., N. Y. It is the same slippery elm, "umbrosial" dodge I have two or three times shown up. Their receipt will not make honey or anything like it.

I CLIP the following from an article in the *Santa Barbara Press*, in regard to Mr. J. Archer, one of our contributors.

Last year he experimented with one colony of Italian bees, working exclusively for increase in the number of bees; from this colony he obtained

thirty-six swarms, and from the original stock and the increase, he obtained 1576 pounds of extracted honey. Thirty of these swarms were sold at \$8.00 a swarm, and the honey at 6c. per lb., making \$34.56 from the proceeds of one original swarm of bees.

The feat seems to me hardly possible, and I am inclined to think the newspaper reporters got the story a little mixed, as they often do. In the climate of California, with plenty of empty combs, and by purchasing queens for the swarms, it might, perhaps, be done, but this would hardly be fairly the proceeds from a single colony. I have given the statement, because it will probably go the rounds of the papers.

I HAVE never had a complaint, so far as I know, of the Clark cold blast smoker's going out, but have had several of the Simplicity form, which is preferred by far the larger part of our customers. The difficulty proved to be that the tube on the end of the cone, was so small, that the blast tube too nearly filled some of them, thus choking the draft. To all having such troubles, we will send a new cone, free of charge, with a larger tube in it. To show you how to start them, we now fill each smoker with rotten elm wood, and all you have to do, is to hold a lighted match before the draft hole, while you work the bellows, and in a twinkling your smoker will be roaring like a drum stove. These are the only smokers that I know of, that can be set in full blast instantly, by simply lighting a match.

A BRAN new book, on a subject I am interested in, if a good one, gives me about as much keen enjoyment, as anything I can think of, and when L. C. Root's new *Quinby's Bee-Keeping* was put into my hands yesterday, I felt as if I could not go on with my work, until I had seen every page. It has beautiful paper, beautiful print, and is full of pictures; pen pictures, too, of the author's own experience with bees, hives, and honey. Somehow, I can not help regretting that friend Root advises a hive with the frame standing on the bottom board. If I am correct, he himself admits that there are but few bee-keepers who can be persuaded to use them. Truly, it takes all sorts of people to make a world. As the book has been entirely rewritten, those who have Quinby's former editions will need this all the same. I think it should be found in every bee-keeper's library. We can mail them for \$1.50.

IN Nellis' price list of supplies, which, by the way, I think it will pay you all to have, if you have got room left in your heads for so much bee literature, I notice he has made a little addition to my cup of melted wax over a lamp, as given in our price list, for fastening in fdn. The addition is a simple little strip of wood, say one of the section pieces, pressed into the cup so as to come just a little below the surface of the wax. Now dip your strip of fdn., in the melted wax until it touches this strip, and it is just right to press against the top bar of the section. To make it hold the fdn. still more firmly, use 2 parts rosin and one part melted wax, in your cup, and you may throw a section on the floor without loosening the fdn. By this plan, one girl will put in starters as fast as 3 or 4 can put the boxes together. Have your cup set in a hole in the table, and the lamp under the table, and you can do them like "smoke." We now put all of ours together in this manner. No top pieces are split, and you do not need a saw cut in it, unless you choose.

Notes and Queries.

PRUSSIC ACID IN WILD CHERRY.

I NOTICE in GLEANINGS the question, whether the blossoms, like the fruit, of wild cherry contain prussic acid. There is no prussic acid in either the cherry or peach, any more than there is alcohol in corn or rye. Prussic acid is distilled from the cherry and peach fruit, bark, or leaves, just as alcohol is obtained from corn, by fermentation and distillation.

GRAY'S FEEDER.

To use syrup in it, the hive must be set level, or the feeder will not hold much. It will do to wet pure sugar with water, but if it contains any flour, it will sour very soon. That is my experience.

Oxford, Ohio. D. A. McCORD.

[I am inclined to think you at fault, friend M. Peach stone meats certainly contain prussic acid, for a child was recently killed from eating too many of these, and an examination showed the presence of prussic acid in the stomach. I once had some honey that tasted so much like peach stone kernels, I was inclined to think it contained prussic acid. The bees that gathered it died in wintering, but you know that is not a very uncommon thing for my bees to do. You are right about the feeder.]

WHEAT BRAN AS A SUBSTITUTE FOR POLLEN.

Bees work first rate on wheat bran. It's fun to see them roll in it; they just wallow around like old hens in dry ashes, and then go off with their legs full. I suppose it's an old thing, but it surprised me.

Greenwood, Col., Apr. 20, '79. H. H. C. BREECE.

I started in bee culture last spring, with 2 colonies. Now I have 6, and one in the woods.

Collinsville, Ill., Apr. 19, '79. B. G. MARCUM.

I have wintered safely, on summer stands, in Simplicity hives, with bees on 3 frames. The hives were contracted with chaff division boards (*ala* Root), and the upper stories were filled with chaff. Most of my neighbors lost heavily. The two, one dollar queens purchased of you last year proved to be purely fertilized, producing finely marked workers and they are also good layers.

JOHN T. GARDNER.

Hamilton, Ohio, April 21, 1879.

IMPORTANCE OF SKILL AND CARE IN HANDLING THE COMBS.

I received your card and am sorry enough that I cannot reasonably ask you to send me another queen, right off, although I am ever so anxious to have her here. I have now three queenless colonies. I accidentally killed one queen the other day, while fussing in the hive; and, by the way, Mr. Root, it does seem a little strange that I hear of no more such accidents. Why, Sir, I scarcely ever work round a hive any length of time, without killing some bees, when I am quite careful, too.

Milford, Del., Apr. 22, '79. ALEX. HENRY.

TENEMENT CHAFF HIVE.

The *Tenement chaff hive*, or 4 in one, illustrated in the Feb. No., is ahead of all others. It cast a large swarm the 25 of this month, April, which is the earliest swarm I have heard of about here. This hive now belongs to Mr. Silas, of Anderson. His bees have wintered nicely in it the past severe winter.

Columbus, Ind., April 26, 1879. J. M. BROOKS.

HOW TO BECOME AN A B C SCHOLAR.

I think I will send for your A B C in a few days, and would like you to explain how I may become one of your scholars, as I am a new beginner. I start this spring with 13 stands of bees, and will have them all to transfer, as they are all in old hives and boxes.

CHRISTIAN E. ROHRER.

Rippon, W. Va., April 35, 1879.

[The way to become an A B C scholar is to get some bees just as you have done, and commence transferring, queen rearing, introducing, Italianizing, and all the other things you read about. Get into the *Smilery*, *Growler*, *Blasted Hopes*, and every where else, except *Humbugs* and *Swindles*. I never

want to see a scholar of mine in there. If you can go through it all, and keep cool and careful, probably you will finally get a great crop of honey, and then will come the hardest lesson of all, perhaps. Keep cool as before, do not get slack in your work, or lazy, and by and by, you will have a class of your own, and I hope teach them a great deal better than I have done.]

WHY SO MANY QUEENS DIE IN THE SPRING.

What is the cause of so many queens dying this spring? I have had 6 die.

ISAAC JONES.

Martinsville, Ill., April 23, 1879.

[And I have had more than 6 die, Friend J., and I can hardly say why they died either. This much I do know, that strong colonies, well protected in the chaff hives and house apiary, neither died nor had their queens die, so I conclude it is in some way connected with the spring dwindling and consequent demoralization of the colony.]

CALIFORNIA.

I will try to get you some seed of the sage this fall; it is only now commencing to bloom. I must try next spring to get a dozen lynn trees by mail from you, to plant on the banks of our creek, to see if they will not grow in California. I have had only a dozen swarms of bees yet. At the rate they swarmed last year, I would have had 350 by this time. Bees are killing their drones, and it now seems probable that Southern California will not yield more than a third crop of honey this year, perhaps not so much.

R. WILKIN.

San Buena Ventura, Cal., April 29, '79.

The three, dollar queens you sent me last Aug. and Oct., prove to be beauties. One raises the largest and yellowest bees that I ever saw. My bees came through good and strong, but three swarms having been lost; two starved, and one winter killed. I have over 50 now.

H. S. ROSS.

Brighton, Mich., April 28, 1879.

SPRINKLING SULPHUR ON WILD BEES TO FIND THEIR TREE.

I have a box hive with glass sides, in which I have a colony of blacks. I have given bees going into the hive, a thorough coating with *flower of sulphur* (see letter of Dr. Ruff, on page 351, Nov. 1878), and have failed to discover any disturbance in consequence thereof. Some of the bees would keep right on into the cluster; others would stop on the inside of the hive and brush themselves with their legs, the same as if they had been rolled in meal.

D. H. KELTON.

Ft. McKavett, Texas, April 28, 1879.

I am sorry to see that you lost so heavily in bees, the past winter. I followed your advice in preparing for winter, and did not lose a pint of bees out of 10 colonies, wintered on the summer stands. One morning, the thermometer showed 22° below zero. Two thirds of the bees in this vicinity are dead. The spring is two weeks later with us, than last spring.

Shamburg, Pa., May 7, '79. D. L. OILER.

[It was once said of a physician, that he, like a guide post, pointed the way continually to others, but never went himself. If the way I have pointed out is a good one, I will try, friend O., and go in it myself hereafter.]

GIVING BEES A FLY.

I went into winter quarters with 41 colonies of Italians and came out with 40, all in good condition. The other died of starvation. I put my bees in a dry cellar, in Nov., and leave them entirely alone till I take them out in the spring. Don't believe in giving them a fly.

JEREMY LAKE.

North Easton, Mass., May 8, 1879.

You should warn beginners, and all, against wearing black hats among bees while working with them. The liability to be stung while handling bees with a dark colored hat on, is much greater than it would be, if a light colored hat is worn. You perhaps have noticed this.

JOHN A. BUCHANA N.

Holiday's Cove, W. Va., May 10, 1879.

[I have never noticed that bees objected to dark colors, but that fur, or anything of a wooly nature, seemed particularly offensive to them. Would not a light fur hat be as disagreeable to them as a dark one, friend B. ?]

In that Simplicity hive I bought of you last year, I have a swarm of common black bees, for which, I have been offered \$12.00 this spring, so you must know they wintered nicely. Bees died off here badly this last winter, but mine are all right, and have been working hard for the past 3 weeks.

D. S. BASSETT.

Farnumsville, Mass., May 5, 1879.

We have had a splendid flow of honey this spring. The flow during the month of April was unprecedented, and, strange to tell, the bees were too busy to raise queens and swarm. At present writing my combs are all well filled, and I intend to have them so during the summer.

W. F. ROBERTS.

Clinton, La., May 7, 1879.

GOOD FOR THE "BLACKYS."

On the 16th of April, 1879, I transferred a swarm of bees from a tree to a Simplicity hive. They gave me 75 lbs. of nice white honey, and 8 L. frames filled completely with brood. They can scarcely stay in a single story hive, and gathered from fruit bloom 25 lbs. of honey after they were transferred. They keep all 10 of their frames nicely filled with brood. Would you call this good work for black bees?

WM. PARMERLEE.

Bean Blossom, Ind., May 7, 1879.

[Yes, Sir.]

PATENT HIVES.

An agent visited me the other day, with the "Van Horn Excelsior Hive" (moth proof). He and others seem to be selling a good many "farm rights," at \$10, in this and other parts of the state. Please tell us in GLEANINGS, if they have a patent.

W. A. MCPHAIL.

Pleasanton, Texas, April 28, 1879.

[I do not know of the hive you mention, nor can I think it worth the trouble to hunt up patents. Past experience in any neighborhood in our land will demonstrate that the money paid out for patent right bee hives is worse than thrown away; will it not? Look about you and see.]

FOUNDATION ON WIRES.

I HAVE been experimenting for some time to insert wires in my foundation. After considerable thinking, the idea popped into my head, that if I should sew the wire into the frames, as you have suggested in GLEANINGS, and then place them in a hot oven, the wires would sink into the fdn. when placed upon them. I was quite sure this would work, so the next day I roasted a frame well, and placed the fdn. on the wires. Imagine my surprise to find that the wires did not sink into the fdn. enough to make a mark! The fine tinned wire (No. 36) cooled almost instantaneously, after being removed from the oven. This was failure No. 1.

Next, it seemed probable to me that, if I should place the fdn. on a board large enough to fit inside the frame, and then heat the fdn. until soft, I could cause the wires to sink into it any depth by pressing them upon it. The heat of the sun not being sufficient to soften the wax, I placed it on the board in the oven. As soon as it softened, I placed a frame over it, and caused the wires to sink into it nicely. I then attempted to raise the frame, when, behold! out came the wires and fdn. stuck fast to the board! This, certainly, was not a success.

Seeing that the wires would go into the fdn., I next tried to soften the fdn. with the wires under it. This was easily done, but I found I needed something to press the fdn. onto the wires. After using various things I made what I call out—

FOUNDATION WIRE INSERTER.

To use this, sew the wire into the frames, place the fdn. on the wires, and set the frames in the sun or above a hot stove (I use the latter), until the fdn. is soft enough to sag a little between the wires, then pass the roller over the fdn., and as it is sup-

ported only by the wires, they are embed in the fdn. If the fdn. is too warm or if too much pressure is applied, the wires will pass entirely through. If, after the wires are inserted, the fdn. bends between them, it can be made straight again by placing the frame over a board made to fit inside and passing the roller over it.

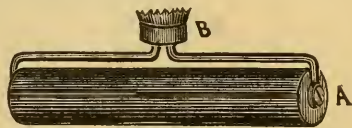
During the past week, I have filled a hundred or more frames with fdn. wired in this way, and my bees are now drawing out the cells. That you may see how little they care for the wire, I send you a portion of a frame which was placed in a hive at 4 o'clock yesterday afternoon, and taken out early this morning. You will see that it is nearly drawn out and partly filled with eggs.

I also send you a "Foundation Wire Fastener." It can be used when made longer or with greater diameter, but I like the small size best, as you can get nearer the top and bottom bars. I do not fasten the fdn. to the top bar; I simply place it close to the bar; the bees fasten it.

A. H. K. BLOOD.

Quincy, Mass.

Many thanks, friend Blood, for so generously and promptly giving us the benefit of your little invention. The comb is certainly as perfect as one could desire, and I really cannot tell by examination on which side of the wire the fdn. was placed. Although the wires are less than 1½ inches apart, there is not a single badly shaped cell on either side of the sample sent. Below we give a cut of the little roller.



BLOOD'S FDN. WIRE INSERTER.

It is made of hard wood, is 5½ inches long and ¾ in. in diameter, and is held in a heavy wire frame as shown in the cut. I will furnish the implement for 20c, or 25c by mail, if friend B. does not object, and I will pay him \$5.00 for his invention.

Do not send any more Jan. and Feb. Nos. That offer of 20c. each "fetched 'em."

THE *Bee-Keeper's Exchange* has now caught up except the March No. The name is a good one; it is really an exchange of thought between real, live, sharp bee-keepers. Some of them may be rather young, and some of the plans given may need some remodeling, but if your humble servant is not the one to have a broad charity for such, I don't know who is. Let us give friend Nellis and the *Exchange* a lift, boys, for his paper is certainly worth the small sum he asks for it.

ALTHOUGH we have had some reports of dwindling with chaff packing, we have had a far greater number which point unmistakably, in favor of chaff packing. Of bees that wintered nicely in cellars, many suffered badly, if not packed in chaff after they were taken out. Well made house apiaries seem to have given the best results. Although it may be hard to tell in all cases, why the bees died, it is very certain that frosty nights in the spring had very much to do with it, and I know of nothing that will so effectually remedy this difficulty, as a warm, well made house apiary.

At this date, May 26th, nothing has been heard from our 100 imported queens. I presume it is on account of the backwardness of the season, which extends to Italy, as well as through our own country. For the same reason, very few dollar queens have as yet been sent out. Several lots are on the way, and you may expect them speedily, in our new large cages. By introducing them into these large cages, with lots of bees, we are spared the task of introducing them to hives.

QUEEN REARING.

I regret that I can send you no queens, at present. The very unfavorable weather has delayed the business very much, so that I am now away behind on orders. I will notify you as soon as I can supply you. I have already received more orders than I had last season by July 1st. Thanks.

E. M. HAYHURST.

Kansas City, Mo., May 16, 1879.

Dear Friend:—May I ask all readers of GLEANINGS to send me any insects, spiders, etc., which may attack or injure bees. Send in a close tin box, by mail, and if the insects etc. are dead, wrap in cotton to prevent injury. I will figure and describe for GLEANINGS all sent.

A. J. COOK.

Lansing, Mich., May 21, 1879.

HOME MADE FDN.

I would like to answer through GLEANINGS, many inquiries, by saying I am not prepared to furnish wood fdn. machines. I gave my description so that any one could make them. I have brood now in flat bottomed cells on fdn. made from wooden dies.

Conklin, N. Y., May 20, 1879.

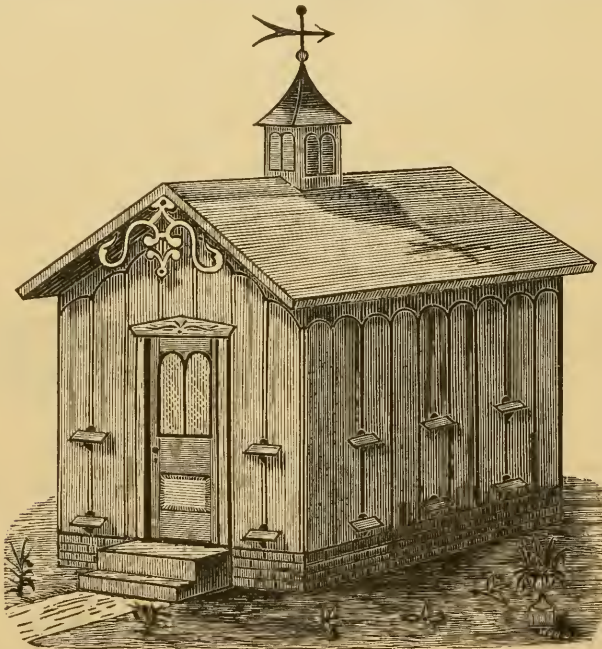
W. RUGER.

FLAT BOTTOMED FDN.

I have tried some of the flat bottomed fdn., and the bees will not work on it until they cut away all the side walls, and dent the bottoms of the cells, as in their own combs. I think it no better than a sheet of wax, which I have found to be a perfect nuisance.

E. M. JOHNSON.

Mentor, O., May 22, '79.



THE 20 HIVE HOUSE APIARY.

A HOUSE APIARY FOR 20 HIVES.

TWENTY chaff hives with all the inside furniture, wintering cushions, &c., cost just \$100.00. The above house apiary, similarly furnished, all painted, complete, we can furnish for the same sum. As it is made of foot boards, it is, as you will see by the cut, 7 feet wide and 9 feet long. The ceiling is 7 feet above the floor. The walls are made warm by several thicknesses of building paper. The space above the ceiling is filled with sawdust, as it also is under the floor. The ventilator and alighting boards are put on with screws, that they may be taken off for shipment. There are four rows of hives, five above, and five below on each side. You will observe that the end hives have their entrances in the ends of the building, the two next the centre

ones having theirs as far away from the centre ones as the size of the hive will allow, the bees going out from the corner of the hive. The price of the whole house, in the flat, will be \$75.00. If all of the inside furniture is omitted, the price will be \$50.00 set up, or \$37.50 in the flat. You see, when your house is locked up and the key in your pocket, no one can meddle with your bees, or steal your honey. Just think how happy you will feel when you see it coming into town, on a flat bottomed car, with the stars and stripes waving from the—"mast head." You know we can send you the key through the post-office. For \$200.00 more, we will send you 20 nice colonies of Italians, to man it completely, ready to "sail." If you think you can make one cheaper, I think the A B C and the above directions will enable any good carpenter to do it.

The contents of this leaf and the one following are not directly connected with the subject of bee-culture. On this account, I make no charge for them, and, if you choose, you can cut them out without reading.

Our Homes.

Wherefore, my beloved, as ye have always obeyed, not as in my presence only, but now much more in my absence, work out your own salvation with fear and trembling.—Phil. 2; 12.

HAD I decided to write, under a fictitious name, as I have written and as I am going to write to-day, or had I described some imaginary character who had passed through these struggles with right and wrong, many of my friends would have far less objection to these HOME PAPERS. While I have no disposition to criticise those who use fiction as a means of illustrating truth, I do not feel right in doing so myself. I much prefer to give plain facts. When you feel like protesting against my speaking of myself as I do, please bear in mind that I am throwing all personal feeling out of the question, and talking of myself precisely as I would give a history of a machine, and that I go into details, precisely as I would in directing you how to make a similar machine, showing up the errors in its construction, with an entire absence of any feeling other than a desire to do good, and to help mankind. I wish my personal friends to bear this in mind; it matters far more what I am now than what I was once.

I wish to go back to that Monday morning when I first started out to follow my Savior. A friend suggested while criticising these Papers, that I had pictured myself a prince among sinners, and doubtless intended picturing myself a prince among saints after my conversion. In telling the plain truth as nearly as I could with God's help, in the first part of my biography, perhaps he was pretty nearly right, but had I been able to say, that I was a new man so far as to be *without sin*, after my conversion, I should most assuredly never have written a word.

That Monday morning, I was, with perhaps the one exception I have spoken of, the same A. I. Root that I had been all my life before, only with a changed purpose. I found within an hour, almost, that pride, anger, ambition, and a host of other evil impulses remained very much as they did before, ready to push forward at the slightest encouragement, and I began to be appalled at the fearful task I had undertaken. I gazed at the world before me, and was tempted to turn back; but, remembering the promise, I could only say again and again, "Help, O my Savior, help me." Every time came the answer, "I am near; fear not, but go on."

One of the first impulses was not to say a word about it to my partner, but to let her see what a "changed man" I was, and at the bare thought came a feeling of pride; but conscience said at once, let there be no hiding, but let everything be plain and outspoken. Then, when telling her what I was going to do, came a disposition to boast of how I would sacrifice property and life, if needed be, for the new cause, and although

conscience said "Stop! stop!" if I recollect aright, I said some things which plainly indicated that no great amount of wisdom had yet come with the new life. Then, in my usual haste, I was going to take back part of it, but conscience said so strongly "*Keep still*; let the matter rest where it is," that I began to learn the very important lesson of the wisdom of leaving things in even a bad shape many times, rather than to waste words in trying to set them right. During those first few days, I heard over and over again, "Keep still; let your actions more than your words show you are trying to be a Christian. There will be plenty of talking for you to do by and by, and you will be told when, and what to say; but until then, keep still, and wait patiently until your orders to work come."

With my restless disposition, I was a little impatient at this, but I very soon found my hands full, and in a way, too, that was not a little unexpected, as well as humiliating. I was going to be a Christian, and have every thought and motive pure in the sight of God. I, who had been for years living a life of falsehood, in some respects, expected in three or four days to be able to be truthful to such a degree that God, who reads one's thoughts, could see no difference between them and the words that were uttered to my fellow men. In trying to go through with business one day, and do this to the letter, I was utterly appalled to see what a great mountain of work needed to be done in that direction. Before night I began to stop and hesitate at every word I uttered. I do not think I uttered any direct falsehoods, even if I did come very near to it a great many times; but after a sentence had been spoken, I saw how far the impression I had purposely conveyed differed from the real thought that was in my mind. Worst of all, I began to fear that it was impossible to do business successfully, and be absolutely truthful. My customer would hold up a piece of jewelry and say,

"Mr. Root, you charge a dollar for that article, and I do not believe it cost you over 75c."

Perhaps the real truth of the case was, that it did not cost 70c., but it seemed to me then utterly impossible to explain to him why goods of that description could not be sold at the close figures of the necessities of life, which were sure sale and no losses from styles changing, etc. What reply should I make? He was watching me closely, and every word I could think of in the way of a reply was sure to convey to him the idea that I had paid more than 75c. for the pin. Excuses for doing so came, lots of them; such as, that a great many of such goods got out of style, and did not sell at all, and that about a bushel of these goods lay in a drawer near me, that I would be glad to sell out for a tenth part of cost, and the pin, in that way, cost a great deal more than 75c. A better impulse kept saying, which is worth the more, to have that new Presence say, "Well done, thou good and faithful servant," or to succeed in making a sale, by doing as every body else does? I could tell the man he had no right to ask such a ques-

tion, and that I would not tell him what my goods cost, but could I say it in kindness? Could I sell him the pin truthfully, in the same way in which I would urge him to become a Christian? I wish to digress a little on this point. Shortly after this, a wholesale jeweler with whom I dealt much, called on me. I knew he had been suddenly converted, a year before, and had been very active in the Young Men's Christian Association. I bought a bill of goods of him, but he did not say a word on the subject of religion. I spoke of it, and asked him if he could go on with business and tell the whole truth square and sharp. He rather evaded it, and finally confessed that he could not.

Said he, "Mr. Root, I would have lost a sale of \$800.00 worth of goods yesterday, if I had stuck to the whole truth on some gold rings. Other dealers warranted them full 18k., and he would not buy them, unless I did the same. Neither would he buy some other goods he wanted, unless he could have the rings at the price named. If other people would be truthful I could be so, too, and get along; but a man would starve on the road, who attempted to tell all he knew about his goods. It cannot be done."

"Then cannot a jeweler be a Christian?"

"I do not see how he can."

"If that be the case, I shall stop being a jeweler from this minute; but, my friend, I cannot for a moment think that truthfulness in business can be carried to such an extreme, as to injure the business in the long run."

This man failed in business soon after, paying but a small amount on the dollar. It is a terrible thing to lose all one's property, but a far more terrible one, to me, to lose that approving voice of conscience also, that I am sure to hear after having tried hard all day to be truthful, even though I have not succeeded as I would wish.

Another great fault, connected with this one, soon began pushing its hideous proportions prominently into view. It is an easy matter comparatively, for me to be frank and truthful when I am in an even temper; but when disturbed or thrown off my track by a little opposition, the case is quite a different one. When arguing or disputing, or when rudely contradicted, my usual good sense seems to desert me, and under the influence of strong excitement, if I allow myself to talk at all, I am very sure to feel afterward, that I have gone wide of the mark, which I have set up for a standard. From the time of my conversion up to the present, I have been obliged to keep saying to myself morning, noon, and night, almost, "Look out! look out! look out!"

Over and over again, have I been obliged to ask God to forgive me for being so careless as to let Satan entrap me in this one way, and I have asked the forgiveness of those around me for the same offense, until I am almost afraid to ever do it again. I shall come to this again further on.

It comes very natural for me to boast of what I am doing, or can do, and this, with a natural tendency to exaggerate and a sort of careless recklessness of consequences, in the course of years, had developed into a

habit of making statements that might, with a very good show of justice, be denominated abominable falsehoods. For instance, if some one asked how much honey my whole apiary was yielding in a day, I would be very apt to say 500lbs. This would make quite a sensation, and visitors coming down to view the proceeding would be pointed to a colony on the scales and told that was an average colony, and there were a hundred just like it. It would all look fair and straight, but actual weight might show a great deal less than 500lbs. Perhaps there might not be a hundred colonies, and a large number might be rearing queens and so getting no honey, the one on the scales also might be much more than average, and finally, deducting the daily loss from evaporation of the honey, the weighed colony might not have gathered 5lbs. of real honey. To have it sound large, I was interested in having it as high as it could be made to seem.

Now to illustrate what I am trying to get before you, suppose, for some reason, I wanted a neighbor to shut his bees up for one day during the height of the season, and should agree to pay for all the honey they would probably gather during that one day. If you please, say the number of colonies was precisely the same as mine. I should then be interested in making the daily product as low as possible. Well, how much would the difference be between the two estimates? By examining myself on such questions as the above, that is by standing aside, and estimating things from two stand points, I discovered myself to be a very unreliable individual. I discovered, too, that the habit had grown to be so much a part of me, that it seemed very doubtful that I could ever learn to be as truthful and accurate as some people without such temptations are. Worst of all, when I was cornered up, and my fault was plainly shown me, the disposition was so strong to stick to my first statement and bolster it up by all sorts of excuses, that I almost despaired at times, of ever being able to come anywhere near what I felt that God demands, and which society also demands. In the little book called the Gospel Hymns, there are four lines that run thus:

"Have we trials and temptations?
Is there trouble anywhere?
We should never be discouraged,
Take it to the Lord in prayer."

I had sung this so much, it had got to be almost a part of myself, and I used to go to the Lord in prayer so often with these trials and troubles, that I sometimes wondered if he never tired of hearing so much from one who, it seemed to me, made such *very* slow progress. I did make progress though, and I grew in wisdom's ways from the very day when I first called on my Savior to help me. It was not long before I was cheered by hearing my friends remark that I had grown so modest in my statements that I had not fairly represented things, and that I had not really done myself justice, by my modesty. Little did they know what a battle had been fought and how I had prayed over these things, thinking over and over again I should never reach my ideal of being accurate and truthful. What a happy, happy

feeling it was to look back and see that I was really making progress, and to feel that approving voice at night, when I lay down to rest. Where it was possible, I trained myself to giving exact figures, instead of rough guesses, and some of you may remember the time, when I decided to give in each number of GLEANINGS the exact number of subscribers each month. I tried, too, to cultivate a disposition to tell the worst side of a story, as well as the best, and to forbear telling a part of the truth instead of the whole truth. After these victories, came another one that I had not foreseen. In employing many boys, and especially those I wished to help, I found those that were untruthful. The discipline I had passed through fitted me exactly, both to sympathize with and have charity for them, and to give them just the kind of help and encouragement they needed to get them to take up the task I had taken.

I do not know but that Christian people, as a general thing, have just as many temptations as other people, and, at first thought, one might be inclined to say, inasmuch as other people, as well as Christians, fight against their besetting sins, there is little if any difference. The difference I should make would be that unbelievers ask no help from God, and, I believe, almost, if not quite, universally try to reform themselves in certain directions, letting pet sins pass by unrestrained. I never heard of any body that set seriously to work to reform himself in every particular, recognizing the whole of the ten commandments, and making a clean sweep of all of his sins at once, unless he took God and the Bible to help him. Unbelievers are sometimes most zealous temperance workers, and so far as I know may excel in any one of the virtues, but I never saw a skeptic who took the whole list of virtues and made it his study in life to restrain all wrong tendencies at one and the same time.

A year or two before my conversion, I carried a lot of bees to a neighboring swamp. Being busy through the week, I anticipated having a fine time with them on Sunday, and accordingly started early one Sunday morning to go and see them. As I should probably have to look the hives over considerably, I wore my every day clothes. On the way down, I met people dressed up and going to church, and as they looked at me curiously, I could not help feeling ashamed of my errand, and ashamed to be thus employed on the Sabbath day. A frost had killed all the bloom, and the bees lost instead of gained. I tried to work with the bees and feel the interest and enthusiasm that I did during a week day, but a few days previous, but my conscience troubled me, and after deciding that there was nothing in the world that I cared for very much, just on that particular, dry, dusty, Sunday afternoon, I started for home. The people were returning from church at the different towns as I passed. I began studying on the matter, and commenced a review of my life, something as I did at the time of my conversion. Finally, as I rode along on horseback, wondering if there was a God, better

thoughts began to come, and almost before I knew it, I began audibly to promise to live a different life. As the duties that would be demanded of me began to shape themselves out, conscience lifted up prominently to view the one great sin of my life. I very soon took back my good resolutions, and declared it was no body's business, and I would do as I pleased. I did not go to bed much happier that Sunday night, you may be sure, as I reviewed the events and the work of the day, but hardened as I was, I made up my mind that I did not enjoy working with bees on Sunday, when all of the best people were passing continually, on their way to church.

Again; when a man deliberately sins in one direction, he will be pretty apt sooner or later, to sin in other ways. I will illustrate it. I used, at one time in my life, to drink a great deal of ale. It was first advised by a physician, and I used to keep a keg of it in my cellar and treat visitors occasionally. My partner was very strong in her ideas of temperance, and finally I promised that I would drink no more beer. I always kept a promise made to any body else, I believe; it was only those made to myself, that I was in the habit of breaking. I never drank a glass of beer afterward. I used to be a little proud of this, even if it did cause me to exercise some self control, and I used to tell her that I had never drank a glass since, that she might think she was exercising a good influence over me. Well, one summer, we got out of honey barrels, and not being able to get any more at once, some whisky barrels were purchased. After filling a couple, it was discovered that the whisky had not all been poured out, and that some was standing on top of the basswood honey in the bung hole. My partner touched her finger to the honey, and told me it tasted of whisky. I replied it was a little on the surface that would soon evaporate and do no harm, and knowing her antipathy to it, purposely changed the conversation. After our work was over, I went down to the honey house, after dark, cut a stem from a pumpkin vine near by, and sucked the whisky from the surface of those barrels. There was not as much as I expected, for, in fact, it was only a taste, and knowing my wife had a bottle of brandy in the house, I went and got it, mixed it with the honey, and drank until it was with difficulty I could walk. Had not a friend called to see me just then, I do not know where it would have ended. This illustrates the point I wish to get at exactly. I had given a faithful promise not to drink any beer, and I knew, full well, this promise was exacted with the understanding, that I should not get into a habit of using intoxicants. Because of that promise, I would not drink beer, but I did not scruple an instant, to evade it in the way I have mentioned, simply excusing myself by saying to my conscience, I had made no promise not to drink whisky. One who has given a promise to man is in much the same attitude; but one who has made a promise to God, and fears him, and him only, stands squarely on a mighty rock, compared with the other. Crippled by sin as I then was, my self

respect gone, it would have been idle to expect any thing else of me than just such conduct as I have illustrated and narrated. Do you not see why we want God in it, if we expect a man to reform, and why we want him to become a Christian rather than a member of any temperance society?

For whosoever shall keep the whole law, and yet offend in one point, he is guilty of all.—James 2:10.

Once more, I will ask you to go back to that Monday morning. I had not yet attended any of the meetings that were then in session, but I began to feel it was time for me to take my place among Christian people. It was a union meeting. Four ministers, of as many denominations, occupied the pulpit. All four spoke during the evening, and, to my great joy, I discovered that they all spoke in the same way, and agreed like a lot of brothers. How peaceful and harmonious they and their different peoples all seemed. Why it was so plain and simple there seemed no possible chance for any body to take exceptions to anything. I felt when the first one spoke that I should love him all his life, for the kind words he uttered, so exactly fitted to my case. When the next spoke, I felt the same way, and so on with them all. I tell you, my friends, the sight of all the ministers of a place joined hand and hand in any cause, is enough to move almost any body. After they had done speaking, an old gray haired gentleman made a few remarks, and I felt as if I must go straight to him and take him by the hand and thank him, for saying just exactly what I would have said; an opportunity was given for others to speak; but I sat in my seat trembling, and my heart beating so I really feared those sitting by me would hear it and know what a coward I was. It seemed to me then, that it would be an unheard-of crime, if any body should know how weak and foolish I was, and how I feared to stand up and acknowledge that I was no longer an infidel, but wanted to be among them. I was afraid I should blunder and not say it right. What a terrible thing that would be, to get up in meeting and talk disconnectedly! Suppose I should burst out crying; "Awful! awful!" Satan kept whispering, "If you should, you would never want to show your face again among these nice people," and so I obeyed him and sat still. The time passed, and meeting was about to be closed. I had not risen. Conscience began to upbraid, and bitterly did I repent. "Then get up now." I had half decided to do this, but Satan put in, "Why, what are you thinking of? would you get up in such an out of place way, during the closing exercises? You will be the joke of the whole town." And so meeting was closed, and I had not so much as stood on my feet, to show that I was willing to confess my Savior.

I spoke to my wife about it, while going home.

"Why, you can get up to-morrow night," said she, "they are going to have meetings all the week."

"But suppose I should die before to-morrow night?"

She tried to tell me that God would take care of me, if I was sorry for having been

backward in my duties, but I had no peace until the next night came. I counted the hours and minutes, until it was time to go to meeting again. I tell you, my friends, there is danger. If the individual who feels these promptings to get up before his fellows does not die, the good resolutions often do, and this amounts to pretty much the same thing. Never mind the fear and trembling. Paul knew, when he uttered the words at the opening of my chapter to day. Go ahead, and thank God that you do fear and tremble. It is a plain and sure indication that you are on the right track, in one respect at least, for you have an anxiety to do right. The next evening I was ready to stand up, the very minute an opportunity was given.

My words, if I recollect aright, were these:

"I have been all my life a busy man. I hope to be a busy man still; but I am resolved, hereafter, to be busy in God's work first, and my own after that."

The new guiding voice of conscience gave me a feeling of approval, and seemed to say I had said enough, and not too much.

I did not think until after I had sat down, how much was implied in the words I had almost unconsciously chosen. It was said before my townspeople, and could not well be taken back. There was no way open but to follow it out. More than once have those words mapped out my future course of conduct, since that night, and more than once have I been restrained from sin, by the thoughts of the words I have used before my classes and Sunday school. More than once, have the words of cheer spoken to the boys in jail lifted and cheered up my own heart. I think there is an indication of God's wisdom in this. What one has publicly exhorted others to do, he is, if he be at all consistent, quite likely to do himself. Therefore speak out; when a good thought or resolution comes into your heart, speak it out to your fellows, and then ask God to help you follow it. One who wishes to be helped, must help others.

On going home that evening with my wife, a little, rude gate stood open across the side walk. We had to turn out a little to get by it. The new Presence seemed to make a beckoning motion for me to enter. My brother lived there. I had passed that little gate at least six times a day for years, but never thought of going in. We could not agree, and there was, of late, estrangement between us. We were both skeptics, it is true, and as we both agreed on religion, it would seem natural that we might, at least, be brotherly. I wonder if skepticism ever makes brothers—well, let us say brotherly. It assuredly did not make me so. How about religion? When I was told to go into that open gateway, I objected, by saying that he was a skeptic, and would ridicule the whole of it.

Said the new Monitor, "It don't matter if he does; ridicule will not hurt you. Do your duty, no matter what others do. Tell him his brother that!"—I made up my mind to go the next morning.

I went up to the door and knocked. The family were perhaps a little surprised at see-

ing me, but they all gave me a kind welcome. Some way, as soon as I came in, my own conduct toward this brother, in the years that had passed, began to loom up before me in colors that by no means contributed to my tranquility. I tried to talk, but the talking machinery was someway clogged, and not a word could I say. They all looked distressed, and anxiously inquired what was the matter. I smiled through my tears, and managed to say, I had dropped in to tell them I had "come back home."

"Come back home?" said my brother, in surprise.

"Yes, I have come back home, to stay the rest of my life I hope. Do you remember, my brother, the companion of your childhood? the brother with whom you used to play all day long? Do you not remember our boats, our fish ponds, our little saw mills, and all those happy days? Well, I, that brother, have come back, and with God's help, I expect to stay the rest of my life. Will you forgive me for my past unkind and selfish life?"

Reader, do you believe there lives a brother that could resist that? He came and took me by the hand, and while tears ran down his cheeks, he and his wife told me how pained and hurt they had been at my coldness, and how they had given me up, as one who was so much absorbed in his own pursuits, that they never need expect to see me otherwise. "If this is religion," said he, "O let the world have more of it; for I did not know there was a power on earth, that could bring you here as you have come this morning."

In that first prayer, I asked God to give me my childhood back. How is it, my friends? Was not that prayer answered? Before long, I visited others of my brothers and sisters, and nearer and dearer, have they all been from that day to this. Once I almost dreaded to hear that a brother or sister was coming to see me, for fear they should read my guilty heart, but now my heart thrills with pleasure at the thought of their coming, or even at the sight of a letter from any one of them. Reader, have you a brother or sister on this wide earth that you are not on friendly terms with? If so, go this minute, I implore you, and make peace with them ere it be too late. Forget all and everything. I do not care what the circumstances are, with the Savior's love in your heart, and with a perfect willingness to heed that guiding voice of conscience, you can, in time, soften the hardest heart. Remember your childhood days; remember the mother who loved you both, and who loves you still; remember the pain you cause her by persisting in that foolish and profitless pride that would make you hold aloof from your own flesh and blood. Shake off the spell that Satan has cast over you, in making you think there can be any excuse for such estrangement; it is Satan's work, the whole of it, and he will lead you along in this way, just as surely as he leads an intemperate man, or as he led myself.

Satan tears down, brings alienation, sets brother against brother and husband against wife; nay, farther, he sets a man against

himself, and, if he could, would persuade him to take his own life. He is not confined to one way, but has so many, that you are in danger of being entrapped, when you least expect it. The religion of the Bible is directly the opposite; it raises, strengthens, does away with quarrels and troubles, carries peace and good will every where, softens hard hearts, brings back childhood, and, in short, makes mankind over again into God's own image. Dare any of you say that it was not the hand of God that pointed the way into that open gate, and bid me fear not the result of following the promptings of that guiding voice?

JUST BEFORE GOING TO PRESS.

[The contents of this department are supposed to be given in an informal way, just before the last form is placed in the press. You can imagine myself, hat in one hand (said hat being covered with sawdust, honey, bees wax, printers ink, etc.), and the other hand on the door knob, just ready to bid you good day until next month, giving you a summary of the last items of interest in the way of new discoveries, etc. The press man will probably cut my talk suddenly short, by telling me he cannot possibly squeeze in another single word, saying nothing about line or lines.]

THE WESTERN HONEY BEE is the title of a queer sort of a bee journal published in Lebanon, Mo. If you will send for a sample copy you will know all about it. Its funny editor, Dr. Harrison, has invented a

\$5 COMB FOUNDATION MACHINE,

which he describes as a book with one leaf and two covers. This leaf and the inside surfaces of the covers are embossed like fdn. mill rolls. To use it, the covers are folded back and used for handles, while the leaf is used as a dipping sheet. Before the wax gets cold, the covers are closed upon it, the whole dipped in water, and two sheets of fdn., just right for your frames, are dropped out. It does not seem to have occurred to Dr. H. that this machine will put fdn. into the wired frames just like a "book," so I suppose I can claim this idea as my(?) invention. See what the Dr. says of this fdn.

"There is no danger of sagging with the fdn. made on this machine, as the grain of the wax is not broken." * * * * *

"We have seen the bees working on it ten minutes after it was inserted in our observing hive. The queen in the observing hive left the old combs immediately and went to the foundation and laid several hundred eggs right on the septum."

I sent a telegram for a machine, the minute the journal was put into my hands. Now listen to another friend.

FDN. WITH SQUARE CELLS. (SEE PAGE 227.)

"Card of 16 inst. received. Sheets with square cells are built out and filled with brood in all stages. Cells are finished up in hexagonal shape, nearly as regular as natural comb, or that built on the best and most perfect fdn. I have tried square cells on 15 or 20 stands, putting in also the regular fdn. got from you. The square cells are worked out first and fastest, but I attribute this to the fact that my sheets were made of good, fresh, yellow wax, while that I got from you is harder and darker, and also older. Wax sheets get hard by age; have you ever noticed that?"

In making the square celled sheets, so far, I have simply used the two pine boards, a tub of water, a bench, and a hammer. I soak the boards in the water (not too cold) a little while, take both out, wipe them off with my hand, lay one on the bench, dip the other in melted wax, lay it on the first and strike with the hammer, slap both blocks in the water and shake them about a little, when they will come apart and the sheet fall out.

My dipping board is pine. A handle is put in the centre so I can dip it without getting wax on my

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Nineteenth Edition Circular and Price List found in Apr. No., Vol. VII., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of postage required.

Canada postage on merchandise is limited to \$3½ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C.	
	Part First.....	\$ 10
	Basswood trees for planting. For prices see Price List.....	
	Balances, spring, for suspended hive (60 lbs.).....	8 00
	Barrels for honey.....	2 50
	" " waxed and painted.....	3 50
	Bees, per colony, from \$7 to \$16, for particulars see price list.....	
10	Bee-Hunting box, with printed instructions.....	25
0	Binder, Emerson's, for GLEANINGS.....	50, 00, 75
0	Blocks, iron, for metal cornered frame making.....	15
	One of the above is given free with every 100 frames, or 1000 corners.....	
10	Burlap for covering bees, 40 in. wide, per yd.....	10
	Buzz-Saw, foot-power, complete; circular with cuts free on application. Two saws and two gauges included.....	35 00
0	Buzz-Saws, extra, 85c. to \$3.50. See price list.	
	The above are all filed, and set, and mailed any where.....	
60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included.....	5 00
	The same for 7 and 8 in. saws (not mailable).....	7 00
3	Cages for queens, wood and wire cloth, " provisioned. See price list.....	10
30	" " per doz.....	1 00
20	Candy for bees, can be fed at any season, per lb.....	15
0	Cards, queen registering, per doz.....	06
0	" " per 100.....	40
60	Chaff cushions for wintering (see Nov. No. for 1877).....	15
9	" " without the chaff.....	15
40	Chaff cushion division boards.....	20
2	Cheese cloth, for strainers, per yard.....	10
10	Clasps for transferring, package of 100.....	25
	Climbers for Bee-Hunting.....	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles.....	1 50
	Comb Foundation Machines complete \$22 to 100 00.....	
20	Corners, metal, per 100.....	50
10	" " top only, per 100.....	60
25	" " bottom, per 100.....	40
	On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.	
	Corners, Machinery complete for making \$250 00.....	
12	Duck, per yd.....	20
15	Enameled cloth, bees seldom bite and propolize it. Per yard, 45 inches wide, 20c. By the piece, (12 yards).....	18
	Extractors, according to size of frame, \$6 50 to 10 00.....	
	" " inside and gearing, including honey-gate.....	5 00
	" " Hoops to go around the top.....	50
	" " per doz.....	5 00
5	Feeder, Simplicity, (see price list) 1 pint.....	05
7	Feeders, 1 quart, tin.....	10
4	The same, half size.....	05
25	The same, 6 qts. to be used in upper story.....	50
2	Files for small circular rip saws, new and valuable, 20c; per doz. by express.....	2 00
	" The same, large size, double above prices.....	
1	" " 3 cornered, for cross-cut saws, 10c; doz.....	1 00
5	Frames with sample rabbit and Clasps.....	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet).....	20
25	Gates for Extractors tinned for soldering.....	50
0	Gearing for Extractor with supporting arm.....	1 25
0	GLEANINGS, Vol's I and II, each.....	75
0	" " Vol's IV and V, each.....	1 00
0	" " Vol. III, second-hand.....	2 00
0	" " first five neatly bound in one.....	5 00
0	" " unbound.....	4 00

	Hives from 50c to \$6 25; for particulars see price list.....	
0	Honey Knives, straight or curved blade.....	1 00
	" " ½ doz.....	5 00
	" " ½ doz by Express.....	4 75
	Labels for honey, from 25 to 50c per 100; for particulars see price list.....	
	Lamp Nursery, for hatching queen cells as built.....	5 90
0	Larve, for queen rearing, from June to Sept.....	25
15	Leather for smoker bellows, per side.....	50
0	Lithograph of the Hexagonal Apiary.....	25
0	Magnifying Glass, Pocket.....	50
0	" " Double lens, brass on three feet.....	75
0	Medley of Bee-Keeper's Photo's, 150 photo's.....	1 00
12	Microscope, Compound, in Mahogany box.....	3 00
0	" Prepared objects for above, such as bees' wing, sting, eye, foot, &c., each.....	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard.....	10
10	Opera Glasses for Bee-Hunting.....	5 00
18	Paraffine, for waxing barrels, per lb.....	25
0	Photo of House Apiary and improvements.....	25
60	Pump, Fountain, or Swarm Arrester.....	8 50
0	Queens, 25c to \$6 00. See price list.....	
1	Rabbits, Metal, per foot.....	02
10	Salicylic Acid, for foul brood, per oz.....	50
0	Saw Set for Circular Saws.....	75
0	Screw Drivers, all metal (and wrench combined) 4½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws.....	
0	Scissors, for clipping queen's wings.....	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each.....	05
	Section Honey box, a sample with strip of fdn. and printed instructions.....	05
	Section boxes in the flat by the quantity, \$6 00 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive, see price list.....	10
18	Seed, Alsike Clover, raised near us, per lb.....	30
0	" Catnip, good seed, per oz. 10c; per lb.....	1 00
0	" Chinese Mustard, per oz.....	15
18	" Mellilot, or Sweet Clover, per lb.....	35
18	" White Dutch Clover, per lb.....	35
18	" Motherwort, per oz. 20c; per lb.....	2 00
18	" Mignonette, per lb. (20c per oz).....	1 40
18	" Simpson Honey Plant, per package.....	05
	" " per oz.....	50
18	" Silver Hull Buckwheat, per lb.....	10
18	" " peck, by Express.....	75
18	" Common " per peck.....	50
	" Summer Rape. Sow in June and July, per lb.....	15
	A small package of any of the above seeds will be sent for 5 cents.....	
5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions.....	10
	Shipping Cases for 48 section frames of honey.....	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c.....	
1	Slate tablets to hang on hives.....	01
	Smoker, Quinby's (to Canada 15c extra) 1 50 & 1 75.....	
5	" Doanville's, to be held in the mouth.....	25
	" Bingham's..... \$1 00; 1 50; 1 75.....	
25	" OUR OWN, see illustration in price list.....	75
2	Tacks, tinned, per paper, (two sizes).....	05
5	Thermometers.....	40
0	Veils, Bee, with face of Brussels net, (silk).....	75
	The same, all of grenadine (almost as good).....	50
	Veils, material for, Grenadine, much stronger than tarlatan, 21 inches in width, per yard.....	20
	Brussels Net, for face of veil, 20 inches in width, per yard.....	1 50
	Wax Extractor.....	3 50
	Copper bottomed boiler for above.....	1 50
5	Wire cloth, for Extractors, tinned, per square foot.....	10
2	Wire cloth, for queen cages.....	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively.....	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot.....	05
	All goods delivered on board the cars here at prices named. A. I. ROOT, Medina, Ohio.	

The A B C of BEE CULTURE

FOR several years, it has been my ambition to be able to write a book on bee culture, so clear and plain that not only any boy or girl, but even an old man or woman, with the book and a hive of bees, could learn modern bee culture, and make a fair, paying business, *even the first season*. This is a great undertaking, I grant; and it will require some one with far greater wisdom than mine, to do it the first time trying. After watching beginners, and answering their questions almost constantly, for years, I came to the conclusion, that the only way to do it was to "cut and try," as carpenters say, when they can't get the exact dimensions of the article they wish to make.

To cut and try on the A B C book, I have invested over \$2,000 in type, chases, etc., sufficient to keep my whole book standing constantly in type, that can be changed at a moment's notice. The books are printed only as fast as wanted, and just as soon as I see I have omitted anything, or have made any mistake, the correction is made before any more books are sent out. To show you how it works, and how it succeeds, I will give you an illustration.

A beginner writes to know if it is of any use to keep a queen, after she is eighteen days old and does not lay. Now I know very well that a queen should lay when from ten days to two weeks old; and also, that they will sometimes not commence until they are three weeks old, and then make good queens. Now, although I directed that they should be tossed up in the air, to see if their wings were good, when they did not lay at two weeks of age, I did not say, if their wings proved to be good, how long we should keep them. If I could spare the time of the colony, I would keep a good looking queen that could fly well, until she is 25 days old; if crowded for a place to put cells, I would kill all that do not lay at 18 or 20 days old.

I have just put the above in the A B C, and that is just the way I am going to keep doing. You see, you beginners are, ultimately, to build up the book.

The book, as it is now, contains about 275 pages and about 175 engravings. It is furnished complete in one, or in 5 different parts. The contents and prices are as follows:

Part First, will tell you all about the latest improvements in securing and Marketing Honey, the new 1 lb. Section Honey Boxes, making Artificial Honey Comb, Candy for Bees, Bee Hunting, Artificial Swarming, Bee Moth, &c., &c.

Part Second, tells all about Hive Making, Diseases of Bees, Drones, How to Make an Extractor, Extracted Honey, Feeding and Feeders, Foul Brood, etc., etc.

Part Third, tells all about Honey Comb, Honey Dew, Hybrids, Italianizing, King Birds, The Locust Tree, Moving Bees, The Lamp Nursery, Mignonnette, Milkweed, Motherwort, Mustard, Nucleus, Pollen, Propolis, and Queens.

Part Fourth tells all about Rape, Raspberry, Batan, Robbing, Rocky Mountain Bee Plant, Sage, Smokers, including instructions for making with illustrations, Soldering, Sourwood, Stings, Sumac, Spider Flower, Sunflower, Swarming, Teasel, Toads, Transferring, and Turnip.

Part Fifth tells about Uniting Bees, Veils, Ventilation, Vinegar, Wax, Water for Bees, Whitewood, and Wintering. It also includes a Glossary of Terms and Abbreviations used in Bee Culture.

All are Profusely Illustrated with Engravings.

Nothing Patented. Either one will be mailed for 25c; ½ doz., \$1.25; 1 doz., \$2.25; 40, \$6.00.

The five parts bound in one, in paper, mailed, for \$1.00. At wholesale, same price as GLEANINGS, with which it may be clubbed. One copy, \$1.00; three copies, \$2.50; five copies, \$3.75; ten copies, \$6.00.

The same neatly bound in cloth, with the covers neatly embellished in embossing and gold, one copy, \$1.25; three copies, \$3.25; five copies, \$5.00; ten copies, \$8.50. If ordered by freight or Express, the postage may be deducted, which will be 3c on each 25c book; 10c on the complete book in paper, and 12c each, on the complete book in cloth.

A. I. ROOT, Medina, Ohio.

PURE DOLLAR QUEENS sent in "Mailable Cases" through the mails, also "Mailable Cases" 75c per dozen. Sample 10c.

7d D. S. GIVEN, Hoopeston, Vermillion Co., Ill.

I CAN ship good Glass Cutters for 25 cents, post-paid. Special terms by the dozen.

H. M. MOYER, Hill Church, Berks Co., Pa.

THE QUINBY BELLOWS SMOKER

Has now been upon the market for six years, and was the first practical *Bellows Smoker* made. A Patent has been granted it over all other smokers that have copied it. Its rights are maintained by Hetherington, Elwood, Doolittle, Alley, Dadant, and unprejudiced bee-keepers every where. Protection guaranteed to all selling and using it. Every smoker warranted the best in the market, or money refunded.

QUINBY'S NEW BEE-KEEPING will be mailed promptly on receipt of \$1 50. It is commended by all.

Prof. Cook says, "I rejoice in the book, and have only praise for it."

G. M. Doolittle says, "I consider it the most practical work on bees extant, and fully up to the times."

"I had expected a good book, but it far surpassed my expectations." * * * P. H. ELWOOD.

"I do not hesitate to pronounce it the best practical book on the subject published." * * *

J. E. HETHERINGTON.

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GREAT REDUCTION

IN THE

PRICES OF

COMB FOUNDATION.

As our stock of foundation is very large, and as we have bought it at favorable prices, and have the most complete facilities for manufacturing it, we propose to give our customers the benefit of our advantages, in low prices.

Our foundation is as fine in quality as any ever made, and we can fill orders on 24 hours notice. At the prices we quote here, you cannot afford to use your old, dry, mouldy combs.

TERMS:—From the date of this issue, till January 1st, 1880, we will pay 24c cash for choice wax delivered here and sell the old style (or lozenge shaped bottoms) for 15 per cent less than following prices.

DRONE OR WORKER CELLS.

1 to 25 pounds, per pound.....	55c
25 to 50 " " " ".....	53c
50 to 100 " " " ".....	52c
100 to 500 " " " ".....	50c
500 to 1000 " " " ".....	48c
1000 pounds or more " ".....	45c

We will also make 5 per cent reduction from prices of **FLAT BOTTOMED FOUNDATION** as quoted below.

We keep the wired foundation in stock in following sizes: Sheets are 10½x10½, 10x16, 10x18½, 8½x16½, 10½x14, 11½x12, and 12x19.

The new, thin, for boxes, is kept in sheets 12x12. Both kinds will be sold at following prices:

1 to 25 pounds, per pound.....	70c
25 to 50 " " " ".....	68c
50 to 100 " " " ".....	67c
100 to 500 " " " ".....	65c
500 to 1000 " " " ".....	63c
1000 pounds or more " ".....	60c

The thin flat bottomed is a grand success for box honey.

Address communications to
7d J. H. NELLIS, Canajoharie, N. Y.

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Names of responsible parties will be inserted in either of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per year.

\$1.00 Queens.

Names inserted in this department the first time with-
out charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent before July 1st. If wanted sooner, see rates in price list.

*E. W. Hale, Wirt C. H. W. Va.	1-12
*A. I. Root, Medina, Ohio.	
*H. H. Brown, Light Street, Columbia Co., Pa.	7-9
*E. M. Hayhurst, Kansas City, Mo.	1-12
*J. M. C. Taylor, Lewiston, Fred. Co., Md.	1-12
*Paul L. Viallon, Bayon Goula, La.	8td
*J. Oatman & Sons, Dundee, Kane Co., Ill.	2-1
*J. E. Walcher, Millersville, Christian Co., Ill.	3-8
*S. M. Hitchcock & Co., Warthen, Wash. Co., Ga.	3-8
*J. B. Keeler, Carlinville, Ill.	3-8
*Newman & Baker, Norwalk, Huron Co., O.	4-7
Miller & Holham, Kewaskum, Wash. Co., Wis.	4-4
*D. A. McCord, Oxford, Butler Co., O.	4-9
*J. T. Wilson, Mortonsville, Woodford Co. Ky	4-4
*S. D. Moore, Atlanta, Ga.	5-10
Sam'l Greenawalt, Cearfoss, Wash. Co., Md.	5-7
*Amos Johnson, Sugar Grove, Warren Co., Pa.	5-10
H. S. Elkins, Kennedy, N. Y.	6-7
J. Mattoon, Atwater, Portage Co., O.	6-7
*F. L. Wright, Plainfield, Livingston Co., Mich.	6-7
Henry Smith, Brooklyn, Green Co., Wis.	7-8
*D. S. Given, Hoopston, Vermillion Co., Ills.	7-8
J. L. Bowers, Berryville, Clarke Co., Va.	7-12
J. P. Sterritt, Sheakleyville, Mercer Co., Pa.	7-8
*Ira Michener, Low Banks, Ont. Canada.	7-8
*J. H. Martin, Hartford, Wash. Co., N. Y.	7-9d
*T. G. McGaw, Monmouth, Warren Co., Ills.	7-9
B. B. Barnum, 38 Preston St., Louisville, Ky.	7
*S. W. Salisbury, Kansas City, Mo.	7-9

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.	
F. A. Snell, Milledgeville, Carroll Co., Ill.	3-7
H. Scovell, Columbus, Cherokee Co., Kans.	4-3
Nichols & Elkins, Kennedy, N. Y.	5-10

Bees For Sale.

ONE DOLLAR PER LB.

Names inserted in this department the first time without charge; afterward, 20c each insertion, or \$2.00 per year.

Those whose names appear below signify that they are willing to furnish bees, without hives, during the coming month, at \$1.00 per lb., the purchaser being required to bear all express charges. Safe arrival guaranteed.

[Express Cos. have promised to return cages to owners free of charge, if made very light.—ED.]

Jas. P. Sterritt, Sheakleyville, Mercer Co., Pa. 7-8

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VII.

JULY 1, 1879.

No. 7.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.

TERMS: \$1.00 Per Annum in Advance; 3 Copies for \$2.50; 5 for \$3.75; 10 or more, 60c. each. Single Number, 10c.

Established in 1873.

SCRAPS AND SKETCHES. NO. 7.

INTRODUCING AND SHIPPING QUEENS.

IN the spring of '78, I purchased an imported queen. She was sent by mail, and, considering the distance traveled, she arrived in good condition. I have had some experience in attempting to introduce queens that are weary and jaded with travel, but I never found it quite so difficult to succeed as I did with this queen; it took a whole week to get her safely introduced, and there were many times during the week when the prospects of my ever receiving any benefit from my \$6.50 seemed poor indeed. I tried giving her to young bees and to old bees; to full swarms from which the queen had been removed, and to swarms just made up by taking frames of brood and the adhering bees from different hives; I tried keeping her caged 24 and 48 hours; and I tried letting her loose without caging; but it seemed to make no difference, as, upon opening the hive 15 or 20 minutes after releasing her, I always found her "balled." The poor queen seemed tired out and "home sick." As a last resort I released her upon half a dozen frames of hatching brood; all openings to the hive were securely closed for a few days, and at last I succeeded.

From this queen were reared over 100 queens. They were all sold near here, and a good share of them were introduced by myself.

Of all the queens that I introduced during the season, I lost only one; and that was caused by my fastening the queen in the cage in such a manner that the bees soon liberated and killed her. At the same time, they liberated and accepted three others.

The manner in which the queens were introduced is as follows: The black queen was removed, and at the same time the cage containing the Italian queen was placed in the hive. In two days, the queen was released, and then the hive was not again opened until four or five days had elapsed; at which time the queen was always found laying.

A writer in the Jan. No. of the *Magazine*, after describing a plan for introducing queens, says: "You need have no doubt about it, and need not stir up your colony in half an hour to see if she is killed, as the editor of *GLEANINGS* advises his readers to do. * * * * * Leave them alone for a week."

A brother-in-law of mine examined a colony in which he had released an imported queen the preceding day, and found the queen all right; but that was the last time he ever saw her. He closed the

hive very carefully, and is certain that he did not injure her.

By reading, and by talking with bee-keepers, I find that many apiarists think it is better not to disturb the bees for several days after the queen is released. "They say," that, upon the least disturbance before the queen has fully recovered from her captivity, which usually takes several days, she is very apt to become frightened and take "leg bail for security," which attracts the attention of the workers and causes them to "ball" her. My own experience, during the season of '78, would lead me to the above conclusion, were it not for the fact that all the queens that I introduced were "fresh" from the hive; none of them being out of the hive more than 24 hours. This, in my opinion, was of as much importance as the manner in which they were introduced. In my own apiary, I change and introduce queens in "any way that comes handy," and never lose a queen.

Ought not we queen breeders—and queen buyers too—to take a hint from this? The hint that I shall take is, to make large cages (now that queens are sent by express, there is but little excuse for using small cages), have them well provisioned with plenty of candy and water, and then put in a good generous supply of bees. The hint that purchasers ought to take is, to buy as near home as possible, in order that the queen, not having been obliged to take a long journey, may arrive in the best possible condition.

One more point; several queens can be sent by express as cheaply as one. Now if you happen to want only one or two queens, why not step over to neighbor A's, this evening, and see if he would not like to send along with you? And if it should happen that he "couldn't afford to send for more than two," why, then go over to neighbor B's to-morrow evening; and perhaps all three of you could send together for half a dozen, and, in this way, the charges on a single queen would be very light.

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

The friends who have advised letting queens out, and then leaving them without any further looking after, are a little thoughtless, it seems to me. In buying and selling queens as we do by the thousands, we have had an experience in introducing, that has fallen to the lot of few individuals. More than this, reports from new hands in regard to their success in introducing are coming

to me constantly. To follow any of the plans that have ever been given, and then go away and let the queens and hives alone will, in the long run, result in the loss of at least $\frac{1}{4}$. I have no doubt of the statements of many, that they never lost a queen, but I think they have handled but few, and those during the height of the honey harvest, when almost any plan will succeed. I am well aware that the opening of the hive will sometimes cause the bees to attack the queen; but, if it does, there is no need of losing her. If you follow the directions I have given, almost anybody can introduce almost any queen. It is a very serious matter indeed, to give advice that will lead beginners to lose their queens, and losses from following such advice are reported to me almost constantly. There is positively no sure way, unless it is made sure by keeping an eye on the queens. The same advice will apply to a great many things in this world. Queens taken from a hive and introduced to another in the same apiary, will oftener be accepted, but it is by no means a sure thing.

TRoubles.

YES, there are troubles this 23d day of June, even though the clover season is at its height and all nature seems rejoicing. What troubles me most about these troubles, is that they fall on your shoulders, or at least, a part of them, my friends. Perhaps the first one is in regard to the R. R. Cos. You know I have tried to take the part of the R. R. and Exp. Cos., and have recommended patience and forbearance and a kindly spirit toward them, as I would toward any one of you. Well, I do not think I shall abandon my position there, but I will give a few illustrations of our trials this season. We have facilities now for making rapid shipments, that we never had before, and, in fact, the window before which I now sit with my type writer overlooks the station house, its clerks, and all the business that is done with the R. R. A platform runs from the doors of our factory, directly to the cars, and every shipment of bees, wax, or anything else, that you send me, is unloaded right under my eyes, if I only look out of the open window. I can also see how all the goods our boys send out are crated, how the R. R. employees handle your goods, and all about it. These improvements over former years have been a very great relief indeed; and, as I review it each morning, I thank God that he has answered my prayers in these matters, and that I am enabled to come so much nearer to you all, through these mediums of thought and business, the telegraph and railroads. During the past month, we have had telegrams for queens which have been picked up and hurried to the passing trains, almost as quickly as you would run across the way to a neighbor's for them.

As I said, I am deeply thankful for all these facilities, but with our large shipping business, I suppose it is impossible but that there should be losses and delays, and other troubles, now and then. In May, a customer from Texas ordered 3, \$3.00 queens. To

avoid delays and save expense, we tried to prepay the charges; but the Express Co. could not tell what it would be over the southern lines, so they would not receive the money in advance. Time passed, and the queens were not received. A tracer was sent, and, after long delays, they were found held at some point in Texas. They were held until the back charges should be paid, yet neither myself, nor my customer was notified where they were, or what the trouble was. The cages were made in such a way that the officials could easily see that they were bees, and perishable, and yet they put them up on a shelf, and let them die; and, nearly two months after we were asked for the back charges, and whether we wanted the dead bees forwarded to destination. I sent back word that they should throw them out of the window, stifling my temper as best I could. They very kindly consented to do this, but sent back for \$1.75 charges for carrying them so far and keeping them until they starved. I felt very much, then, as if it would be inexpressibly delicious and soothing, to be permitted the luxury of tearing that Texas man's shanty all down, and giving him such a shaking that he would never think of starving any more innocent bees, so long as he remained in the express business. But I put away such thoughts, paid the \$1.75, and prayed God for patience, and that he would help us to soften even the hearts of the Express Cos. What do you suppose happened? Nothing different from what has happened a great many times, in my business troubles and trials. A gentleman came in, a few mornings after, introducing himself as the superintendent of our express line. He said he had noticed the amount of business we gave them, and asked if he could do anything to aid us. In a twinkling, our printers had some neat little labels directing any express agent in the U. S. to forward the package it was on, without delay, under any circumstances whatever, signed with the superintendent's name. He also made arrangements to carry queens, smokers, etc., over any or all northern lines for one single charge of 25c., besides fixing many other things greatly for the comfort and convenience of myself and you.

More troubles are still to be prayed over, however. While the Express Cos. will carry \$5.00 in money for 15c., they will not bring back a C. O. D., for less than their old fashioned rates. For instance, a friend in our state wanted a queen, C. O. D. They carried the queen to him, for 25c., but when he gave them the \$1.25 to carry back, they charged 75c. for carrying it. I expostulated, but it could not be corrected. They could easily carry the \$1.25 for 15c., but if it was the pay for a queen they had brought him, the proper charge was 75c. I have always objected to the C. O. D. business, but, if you, my friends, wish to see your goods before paying your money over, why, you should have the privilege, especially, if you pay for it; but you should not be asked to pay any such exorbitant rates. We have written the superintendent in regard to the matter, but time passes and no answers come. God answers, when men do not. To him we shall have to go again.

The troubles with goods sent by freight seem even worse than those with the Express Cos.; for the R. R. Cos. *will* take their own time, whether or no. When clover began to come out, quite a number of the friends wrote they had not received their hives and section boxes, although they sent the money away ahead of the time they would be needed. One poor fellow had "Raked and scraped" and borrowed the money to get his outfit for the season, and, although he sent in April and his goods were sent early in May, clover was in bloom, his hives full, and nothing to put the honey in. He could not possibly borrow any more money, and unless his goods were received at once, he could, no way in the world, pay for what he had already borrowed. A tracer had been sent for the goods nearly a month before, but not a word. Another was sent, but not a word. I ordered our agent to trace them by telegraph, offering to pay all expenses. He sent the telegram, but the proper officials would not answer; I waited one day, and sent another; no answer; one more day, and no answer. I felt again, that when men who held important positions were too proud and lofty to give us notice, God never was, and he would *always* answer. I went to him, and, as a consequence, filled our friend's order again, and sent it by express. I did the same with another, and another, until all the lost goods were made up out of my own pocket, trusting to be able to recover them, though it might be, if at all, after the season is over, so the goods will be of no value until another year.

You know I have told you about casting bread upon the waters. Well, it seemed so in this case; for, much to my astonishment, one of the parties, after mentioning that the goods by express reached him just in the nick of time, said the season was proving so favorable, he thought he should use both lots and would pay all charges, thus relieving me entirely from loss. Another said that both lots had come, and that he needed them all.

I might have gone to law, and sued the Co. for such a very long delay, and for having refused to trace the goods. It is true, I *could* have done so. Would I have been happier, or made any more money? We had a little text in our Sabbath school lesson of a few days ago, as follows:

"It is not by might, it is not by power, but by my spirit, saith the Lord of hosts."

The spirit of Christ's teachings will conquer where law will not, and arouses none of the unkind feelings that law is so apt to engender.

Again; I might have printed on my bill heads, as so many business houses do,—

"All goods delivered safely on board the cars, and the R. R. Co.'s receipt given, after which our responsibility ceases." My friends, that would be a very easy way to do, but I would no more think of turning you off in that way, after you have scraped up your money and sent it to me, than nothing in the world.

Now I am coming to the last and worst trouble. I really wish I could see my way out of it, as easily, as I can those I have

mentioned. Perhaps I shall be censured for coming out with it, but you know I do not believe in keeping secrets. It seems to me God likes to have things brought out plainly. You probably all know what I have said in my price list about sending money in letters, in place of getting drafts or P. O. orders. You may have noticed in our late lists, that I have said \$2.00 instead of \$5.00. Well, I shall have to tell you now, not to send any *money* in letters at all, for the present. Get a P. O. order, bank check, or have your money registered. By either of these methods, money may be sent at my risk, but not otherwise.

Until last December, our losses by mail did not exceed one letter in a thousand. At that time, they began to increase rapidly, and within the past two weeks, not only have letters containing money been missed entirely, but we have been in the receipt of great numbers of letters from which the money had been abstracted, and the letters sealed up again. I have notified the Government, and they seem to be doing all they can, to ferret out the thief. In fact, I hope the matter will be fully cured before this reaches you. It seems to be settled, without question, that the robberies are made before the mail reaches our town. In every case, as soon as I have been informed of the facts, I have forwarded the goods, without receiving a cent for them, knowing that, in our business, the want of the goods is frequently much greater than the value of them. I have stated the matter as well as I could to those of you who have lost, and have asked you, if you felt it was right, to send me half price. Many of you have done this, and quite a number have sent the whole amount again, saying they did not expect me to send off my goods until I had received the full price of them. Many have very kindly thanked me, for my consideration in sending the goods without pay, while a few, a very few, have declined sending any thing, saying they had paid for the goods once, and they were not going to pay any more. I believe only one friend made this last remark. This has been a severe burden for me to bear during the past six months, and I have kept still about it, thinking we should certainly soon be able to unravel the mystery. I may be blamed for having advised that money should be sent by mail without registry, rather than by P. O. orders and registered letters; but, with the security the mails have afforded during the 20 years past, while I have been in business, I should unhesitatingly recommend as I have in my price list. Mails going to other offices, with but few exceptions, go with the usual regularity. May God grant that the unfortunate brother, whoever he is, who has so unscrupulously appropriated our hard earnings, may be brought to light and to justice, and if his eye ever glances at these pages, which is among the possibilities, may his soul be awakened to the enormity of the crime he is committing against the God above, as well as his fellow men.

THE grooved board, illustrated on another page for watering bees, or for an open air feeder, we can furnish for 15c.; if sent by mail, 25c.

HONEY BEES OF SOUTH AFRICA.

SOME months ago, the editor of GLEANINGS spoke of Stanley's men bringing in honey comb, and wished they had mentioned how much honey was in it, &c. A cousin, A. S. Peabody, now at Laramie City, Wyoming, visited me last summer, and I remembered hearing him say that bees in Cape Town, where he spent 14 years, did not store any honey; that they only gathered each day enough for their own use. So I wrote him for information on the subject, and give you his reply as follows:

I believe it is a fact that the bees at the Cape lay up very little extra honey. Mine did not; my six hives not giving me enough for my own use. I complained of this to the old *beeologist*, who made hives for a living, and bees a study. He told me that was the habit of bees in that country; they found flowers in abundance the year round, and they became lazy and did not lay up much. I remember he had a glass hive on his parlor table, which was near a window, with an entrance running under the sill, and there he would sit by the hour, when he had nothing else to do, and study the habits of those bees. He could give a world of information on the subject of bees, for he is intelligent, and an enthusiast on bees. I showed him a bee journal which I suppose you gave father, and he went wild over it. If anyone writes him, have them send a journal or two. The postage on letters is 15cts.; on papers, 4cts. Address Mr. Corliss, Bee Master, Cape Town, C. G. H. [Africa, Ed.]

I don't understand why bees did better on the east coast of Africa and in Madagascar (that is where the Cape supply came from), unless because the bees there are pure natives, whereas, at the Cape, they are of Italian stock, and perhaps of brighter comprehension. I doubt if new stock is ever taken there from Europe nowadays. I never heard of any.

The natives in Cape Town are just like the bees. He says, if you wish to hire one to do a small job of work, they will say, "Oh, I have 75c.," or "I have rice enough for a few days or a week; I won't work until that is gone."

J. L. PEABODY.

Denver, Col., May 17, 1879.

DUAL ROYALTY.

FOR some years, I have known that two queens would occupy the same colony, under peculiar circumstances; for instance, in a very long box hive with contracted centre, or a two story movable frame hive, or a hive with honey boxes on top, or a natural gum with two enlarged cavities, &c.; but I always thought the bees were on the eve of superseding an old or diseased queen, and such cases which have been reported seemed to confirm the supposition. I now know, however, that, with the above named conditions of a hive, two, young, fertile, and laying queens do sometimes live in the same colony. In March, a choice colony of mine sent forth a swarm, which I secured, queen and all. I knew the queen by her physical aspect. In a few days, I went through the old queenless hive, and cut out all the queen cells but three, intending one queen to succeed the old queen, and the other two for two hybrid stocks.

Other business matters detained me from home, until the second swarm had issued just before my return. I proceeded to overhaul the old colony, and, on the second frame, I found a beautiful young queen, and all three of the cells had hatched. Supposing that two of the queens had gone with the second swarm, I did not examine any farther, and put on a top story with sections and comb for guides. In ten days, I went through the hive again, to see if the young queen was a success and laying. I took

off the upper story, and examined the combs in the lower story. I soon found the queen greatly enlarged, and the combs full of young brood and eggs. I closed the hive, and, before replacing the upper story, concluded to look after the progress in the sections. The very first one I opened presented to me another beautiful queen, a type of the one in the lower story. I at once suspected her to be the same, thinking she might have escaped from her combs and got into these. However, I caged her, and after inspection found eggs in the sections. I immediately gave her to a queenless colony, and after 12 hours released her; on examination, six hours later, I found she had filled two sides of two combs with eggs. Now, to establish the fact of there being two, young, fertile queens in one hive, I went again through the old colony and found the queen laying eggs, which she continued to do after I had raised the comb out of the hive. These queens must have occupied the hive together,—one, the upper, and the other, the lower story. As the tops of the frames made a sort of separation, they did not intrude on each other's dominions, just as two swarms may occupy a large goods box, at the same time, without mingling.

How did they pass, after being fertilized, is the question? But, in the face of this clear case of "dual royalty," I do not believe two, young, fertile queens will ever occupy the same apartment, if it is of ordinary size and regular shape, in peace and harmony, but will swarm out or destroy each other. The case described above is the exception and not the rule.

GEORGE B. PETERS.

Council Bend, Ark., June 11, 1879.

WINTERING, CHAFF HIVES, OLD BEES, VENTILATION, ETC.

TO our great surprise, we had a splendid natural swarm of Italians issue last Saturday, May 31st, which is the earliest we have ever had in our bee-keeping experience of 20 years. Last September, we noticed that brood rearing had been suspended in most of the 17 colonies on hand. Estimating the average life of workers at 6 months, those hatched by Sept. 1st, would end their days by March 1st; and as, at that time of year in this latitude, it is often so cold that brood can not be raised, we concluded that, in order to insure a supply of workers until May in case of bad weather, new brood would have to be raised.

Accordingly we stimulated by nightly feeding one-half pint of syrup made of two-thirds grape sugar and one-third California strained honey which we bought for 5 cts. per pound, being an old lot left at one of our grocery stores. The effect was satisfactory; brood rearing was resumed at once, while the sealed stores were left intact, and came in very good play during the severe winter. The result was still more satisfactory; 8 new swarms in chaff hives, and 10 old and new swarms in the old L. hives, entirely unprotected except by chaff cushions over the enameled cloth, all left on their summer stands, came out without loss of a queen or swarm.

Particular care was taken, in the autumn when the cushions were placed on the enameled cloth, that there should be some top ventilation; for, whatever others' experience may be, we are convinced that they must have at least a little top ventilation, and yet we would not dispense with chaff cushions.

In the past 20 years, we have sometimes lost a few swarms, but never lost a swarm except where the top was entirely closed, and never lost one that had ventilation at the top in some shape.

A. C. KENDEL.

Cleveland, O., June 2, 1879.

After receiving the above, we wrote for further particulars in regard to time of feeding, etc., and received the following:

As nearly as I can remember, I commenced feeding about the middle of Sept., and kept it up until too cold to feed outside. Brood rearing went on uninterruptedly until the cold weather stopped it.

This spring, there were some cells with hardened grape sugar in them, but all disappeared in due course. We had chaff division boards made for all, but had no time to put them in last autumn, except in two chaff hives, neither of which are quite as strong now as the others, which probably is rather owing to the fact that these particular colonies were the weakest last fall, being third swarms.

It is our opinion, that what is called the bee disease, spring dwindling, etc., is nothing more than dying of old age. When a few run out, void their excrement, and then fall helpless into the snow or in front of the hive, it is called dysentery; but would not the same bees die in the hive, and be carried out by one of the living?

About upper ventilation, it seems to us positively necessary; not, indeed, a draft through the hive or a hole just over the cluster; but openings at the ends of the bars, or, as in the chaff hives, four small openings of $\frac{3}{8}$ of an inch square, at the corners, will be quite sufficient to permit a change or circulation of air. In warm weather, bees will furnish their own ventilation. When they lie perfectly still, however, with no fans at work, their own warmer atmosphere being unable to descend to the entrance below on account of its being lighter, and they still needing pure air to breathe, does it not seem reasonable that they require assistance in this direction?

You will say, it is their instinct to close up every crevice, consequently we must aid them to follow their instinct. But you do not always follow their natural instinct in other matters; for instance, their instinct prompts them to build abundance of drone comb, but you rudely and persistently cut it out, and, by fdn., compel them either to raise drones in worker cells or go entirely without. It is their instinct to go into the woods, but you advise all kinds of devices to keep them at home in your own hives. Of course, our theory of the necessity of pure, unbreathed air needs no argument, when every bee-keeper has had more or less experience in smothering. If they, then, need so great a supply of pure air in warm weather, why should they not need some in a cold temperature?

As we wrote you in a former letter, great care was taken that all our bees should have some ventilation at the top; all were covered with enameled cloth and chaff cushions on top. During the winter, we found all the cushions wet, at the outer edges, with moisture from these air escapes, but the centre was invariably dry and warm. Having only one extra cushion, we exchanged one after another, drying them by the stove.

We notice in GLEANINGS that many bees were wintered successfully in cellars but were lost by "spring dwindling." Was this anything but the old

bees dying, and the cold spring effectually stopping brood rearing?

A. C. KENDEL.

Cleveland, O., June 13, 1879.

Ladies' Department.

IT is about 3 years since I determined to study the bee, and I have learned considerable. My time is very much occupied, as I have 5 children, but still I am going to devote some time to bee-culture. My bees are in good order; I did not lose any this winter, which is not the case in our neighborhood generally. Last winter was hard on them.

Indiana, Pa., May 9, '79.

Mrs. J. B. ADAIR.

Oh, dear! Oh, dear! and after I've been bragging too! It is really too humiliating to admit that I know anything about spring dwindling; but truth compels me to acknowledge that I know all about it. If I was the only, or almost the only, one who knew about it this spring, I should truly feel chagrined. But, as it is, there is a feeling almost of kinship for the whole bee-keeping fraternity, and a sympathy for their losses nearly as great as though they were in my own apiary. From the 20th until the 27th or 28th of March the bees seemed all right. Then there came a second edition of winter, and this really proved too much for their endurance, for they began to drop off, one after another, until, on May 1st, only 25 out of the 36 before reported were left, and two of those were queenless; 12 or 14 rousing swarms, however, were not so docile but that the smoker was needed every time the cover was raised. Now, I think there are good lessons to be learned from such losses, by the thoughtful student of apiculture, and I don't think I am so dull as not to have learned something profitable from it all, though but an A B C scholar.

Mrs. Axtel's bee-dress I find just the thing, with the addition of a bloomer costume. One can get about so handily with no long skirts dragging around after them. Try it, ladies. I am handling my bees this summer without a bee veil, and it is just fun to stand quietly, smoker in hand, till those vicious hybrids have got their eyes so full of smoke that they are ready to cry, "Enough, enough," and then go inside and attend to business.

June 12.—It is just one month since the above was written; I could hardly believe it true, when I read the date, but think I can report fair progress since that time. I lost 3 more queens after writing up my losses, but have them all replaced again but one. I am saving one queenless stock for a queen from E. W. Hale. It was ordered some time ago, but guess I won't "growl" yet, for there may be a rush just now, at Wirt C. H.

That stairway of yours must be immense, and you must do a good deal of walking; for you seem to get at almost every thing in those walks. The tomato question had been revolving in my mind for some time; I have seen them trained on frames, on a terraced hill, from one terrace to another, and I never saw a more beautiful sight than they were when ripening. I think I shall try some around the hives in my own apiary.

Mrs. ROSE THOMSON.

Cowlesville, N. Y., May 12, 1879.

Bloomers may be convenient, but — — — Mrs. T., can you not devise a comfortable dress that will not make you conspicuous?

SAGGING OF THE TOP BARS TO FRAMES.

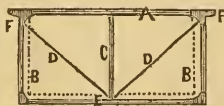
A COMPLETE REMEDY, EVEN WITH VERY LIGHT TOP BARS.

SOME of you may remember that our first metal cornered frames were made of stuff only $\frac{1}{2}$ of an inch in thickness, top bars and all, depending on the comb guide to prevent the top bar from sagging. These combs were beautifully light and nice to handle, and did very well until they became heavy with honey. If we were sure to

extract them as soon as they contained two or three pounds of honey, they were all right, but when they were allowed to fill up for winter, so as to contain double the amount, the top bars, in time, would curve downward. The bottom bars followed suit, and we soon had them squeezing bees against the bottoms of the hives, or when used in an upper story, upon the top bars of frames in the lower story.

To remedy this, we commenced making the top bars a little heavier, and have increased them gradually, until we have them $\frac{3}{4}$. Still they sag more or less, under a heavy yield of honey. Top bars to frames sent in to us are found sagged even when they are $\frac{3}{4}$ of an inch in thickness; and, one day this week, a hive was sent having the top bars a full inch; these, too, had bowed downward, but they were old, and had doubtless sustained the weight of the honey of many seasons. The objections to such a top bar are, that the frame is heavy and unwieldy, and that a great amount of wood is taking the place of what might be sealed brood or honey, right in the heart of the brood nest. While meditating on these points, a friend sent in the following:

January 30th, I wrote you of an invention of mine which I consider a great improvement in the way of securing *fdn.* from sagging, etc. I never heard from it either by mail or GLEANINGS; so I concluded you either failed to get the letter or did not consider it worth notice. Yet I enclose a duplicate description, and if you deem it worth publishing, all right. Every body is welcome to it free of patent.



A, metal cornered frame. B, foundation. C, hard wood strip, $\frac{1}{2}$ by $\frac{1}{2}$, length of the inside height of frame in the clear. D, D, fine wire.

TO PUT TOGETHER.

Lay the frame on the board which brings the *fdn.* in the centre of the frame, put in a sheet of *fdn.* or as much as is desired, and place the strip, C, on its edge, and press it into the *fdn.* firmly. Now, with hot wax, run a stream, or pencil it, along the upper edge of the *fdn.*, supplying a little extra around the top of the strip, C, to hold it fast, then a very little at the bottom of strip C; also with a small roller, something like the pulley off from a watchmaker's pivot drill placed in a handle for this purpose, *embed* the fine wire in the centre of the *fdn.* [*fdn.* must be put on the board before the frame is put over it.] To put wire in the frame previous to putting in *fdn.* and strip, C, take a piece long enough to make a hook on one end, hook it around one of the top-bar tenons, have all the bottom bars punched in the centre, with an awl having 2 blades $\frac{1}{4}$ in. apart on one handle, pass the wire through downward and again upward in the bottom bar, at E, and put a $\frac{1}{2}$ in. brad in the staple formed by the crook in the wire, pass the wire up between the two central tenons in the end bar, as at F, drive the frame together, place it over a board of precisely the size of the inside; draw the wire tight, give it a turn around one of the tin clinchers, and clinch down all the tin corners, and it is ready for *fdn.* Frames prepared in this

way will never sag their top bar or *fdn.* Those cells only which are over the strip, C, will fail to have brood. The strip will be incorporated in comb and can not spring sideways or let the top bar sag or *fdn.* either. Combs and frames fixed thus, young swarms can not spring out of shape; at least, mine do not, even when 2 large swarms are hived together. Try them and like them as you will be sure to do.

Milton, Del., May 21, 1879.

L. W. BETTS.

After reading the above, I gave friend Betts a dollar for his trouble, proposing to send him more after I had given the plan a thorough trial. What I wanted was, not only to prevent the top bar from sagging, but to be enabled to fill the frames full of *fdn.* so securely that they might be sent by express or freight, without danger of breaking out. Almost ever since we commenced selling *fdn.*, we have had constant calls for hives containing frames supplied with *fdn.*, all ready for new swarms of bees. Well, I soon found that the upright stick and the two diagonal wires were not sufficient to prevent the bulging of the *fdn.*, and so I added some fine upright wires, and made the frame, when ready for the *fdn.*, look something like the following:



FRAME FOR HOLDING *FDN.*

In our frame, we dispense with the comb guide, and make the top and bottom bar both alike, of stuff a little less than $\frac{1}{2}$ in. in thickness. Both parts are bored alike, for it is easier to bore an extra hole in the top bar than not to do it. You see we have only two sticks, or rather two kinds of sticks, of which to make the frames,—end bars, and top and bottom bars. Still farther; these sticks are exactly alike at each end, thus requiring but one machine to make them. The frame is put together with metal corners, as usual. Next, a brad is driven through the bottom bar, in the middle, crossing and passing through the hole for the large wire. This wire, which forms a cable like that in a suspension bridge, and which holds the whole weight contained in the frame, should be pretty strong, say No. 23 or 24, tinned wire. Cut this wire off in lengths of 23 in., and double it exactly in the middle. From the underside of the bottom bar, put the two ends up through the hole, one on each side of the brad, and then bring them up, one to each upper corner, pushing each one through the dove-tail in the end bar, and bringing it up between the supporting arms of the metal corner; draw it up straight, and stick it securely to the metal corner with a drop of solder. Now, if you pull on these cable wires too tight, you will make the bottom bar bow upward; the design is to have the bottom bar just straight, when it shall sustain its greatest weight. Now to keep the top bar from sagging also, you are to take a slip of straight grained, stiff pine, about equal to our usual comb guides, say $\frac{1}{2}$ inch wide, and 3-32 thick, and cut it exactly as

long as the end bars are, inside measure. As these sticks are to stand flatwise and have comb built right over them, we will dip them in melted wax, before standing them in the frame, as shown in the cut. If of the right length, they will make the top bar just perceptibly crowning. When loaded with a heavy weight of honey, they are expected to be straight.

Before putting in the fdn., we will put in the light, upright wires of which there are 6, 3 on each side of the waxed upright. Draw them up as tight as a fiddle string, if you like; it can do no harm. To put in the wire, we fasten it to the bottom bar, then put it up through the first hole, bring it along the upper surface of the top bar and down through the next hole, and so on, fastening the last end under the bottom bar. Now cut the fdn., exactly the size of the inside of the frame; if it is a little full, it will do no great harm. Warm the sheet in the sun, lay it on the wires, and rub it down with the little roller figured last month, and you will have combs that are perfectly straight and true, and yet you can throw them on the floor when only one day old, and it will not harm them. Furthermore, frames filled with fdn. can be put in hives, or shipped in a crate, ready to hive swarms on, without fear or solicitude. Great numbers of losses have been reported, every season, from combs having broken down in hot weather; and in buying bees this present season, whole colonies have been killed by the breaking down of a single comb.

For such frames complete, all filled with fdn., fastened in, our price will be, for the present, 15c or \$14.00 per hundred. The same in the flat, each 2 cts. less.

Humbugs & Swindles.

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

MITCHELL STILL AT HIS OLD TRICKS.

WILL you please send me your honey extractor, No. 6, C. O. D. I ordered one from N. C. Mitchell, the first of March, to be sent in the same way; he wrote me that he never sent goods in that way, but if I would send the money, he would send me the extractor on the receipt of it. I sent him the money, and that is the last of N. C. Mitchell. I can neither hear from him nor get my money or extractor. Please send it immediately, on receipt of this, for you know the goods sent C. O. D. are just as sure for the money, as if you had it in advance.

JOSIAH PERRY.

P. S.—N. C. Mitchell acknowledged the receipt of the money. I would like you to ventilate him in your journal, so he will not swindle any one else.

Covington, Ga., June 2, 1879.

J. P.

Bless your heart, friend P., we have ventilated Mitchell almost ever since GLEANINGS had an existence, but it seems he continually finds some unfortunate like yourself who does not take the journals. No honest dealer should refuse to send goods C. O. D., if his customer prefers to bear the

additional expense of sending his money in that way. Those who are willing to incur this expense for the sake of seeing their goods before handing over their money should certainly be accommodated, and we send our work out almost constantly in that way. It always pays to take the journals; do you not see it?

I drop you this card in reference to the division board that is used in hives, whether there is a patent on them or not. There is a man here who says that he has a patent on them. He has sold one or two rights. A good many of us are using them. He says he is going to prosecute those that are using them, and I want to know what to do about it.

W. H. BURRIS.

Spencer, Ind., June 19, 1879.

I can only repeat what I have said month after month, that one who claims to have a patent on division boards is a most bare-faced swindler, and only expects to scare folks into paying him money, without a thought of trying to prosecute. Either pay no attention to him at all, or treat him as a highway robber.

INTRODUCING QUEENS BY "RULE."

AND THEN SHUTTING THE HIVE AND "LETTING THEM ALONE."

TWO letters just now handed me, will show the rashness of deciding that it is ever safe to follow special directions and then let them alone.

That queen came all right; but I had a hard time to get the bees to accept her. It took about nine days to get her in, but she is all right now. She has commenced laying all right.

D. BALDWIN.

Baldwin, Ohio, June 11, 1879.

I received my queens the 30th of May. They were in good order, everything being all right as far as I know. But that was not the worst of it; they came when I could not get away from my work (I work in a basket shop and cannot always get away when I want to). I tried three days to get one swarm to take one queen, and could not make them own her. I got her all daubed with honey, then I took two frames of hatching brood from my only swarm that had a queen, and put it in a hive, picked out about 50 young bees, and put bees, queen, and brood together; I took them into the kitchen and have kept them by the fire ever since. The other one I tried one day longer and then served her the same. I think if I could have had time (of my own) that I should have made the bees own them. I set them in the sun day times, and keep them by the fire nights. They are both laying. One has about a quart of bees, and the other half as many. I have taken out of my best swarm two frames of brood to keep my queenless ones along, 2 frames each for my Italian queens, transferred them from an old hive to a new one, and yesterday, June 8th, they gave out a large swarm—as much as a peck of bees. I had them in a hive and at work in less than one hour after they commenced coming out of the old hive. How is that for an A B C scholar?

GUY CLARK.

Bellows Falls, Vt., June 9, 1879.

It is just right, my friend. If your bees decline to accept the queen you wish them to have, it is your "beesi ness," to make them accept her.

CANS FOR HONEY.

THE young man who japsans and letters our extractors astonished me a few days ago by bringing in one of our honey cans lettered in gold bronze as in the cut below.



CAN FOR EXTRACTED HONEY.

The expense of this work will be just about that of the can itself. On the 25 lb. can, we only put the word "Honey", but on the 50 and 100 lb cans, we put the name and address, if they are not too long.

DEPOSITORY OF

Blasted Hopes,

Or Letters from Those Who Have Made Bee Culture a Failure.

PLEASE forward two, "dollar" queens to James Anderson, Farmers P. O., Sanilac Co., Mich. I have but four colonies left out of 130 and two of those are queenless. About how many bees are usually in a two frame nucleus hive? and will they grow to a full colony without aid?

JAMES ANDERSON.

Washington, Mich., May 31, 1879.

About a half lb. of bees are generally put in a two frame nucleus, and, if started—say in July, and the two frames are fairly filled with brood, they should build up to a full colony. If they are kept constantly rearing brood at full speed, by feeding, I think they should build up, even if started a month later; but the queen must not be allowed to stop laying, or the colony will assuredly be a risky one. I am very sorry indeed to hear of your severe losses, friend A., but your report may serve a timely caution to beginners.

ITALIANS AND BLACKS.

I WOULD advise your correspondent, H. R. Boardman, on page 215, June No., to introduce pure blacks instead of pure Italians, unless he has had a different race of Italians from any I have ever had. I have had Italians for ten years, and have had home bred queens from many different breeders very much noted for their skill in breeding good queens, and have had imported queens, too, and would say, so far as box honey is concerned, I consider them far inferior to the blacks. For extracted honey they may do, but we don't all want extracted honey. In the way of swarming, I consider them a nuisance. They will rush out and swarm

when the hive is not full of bees, and not enough of honey in the field to keep them from starving. In regard to taking the pure Italians to some lonely isle to breed them in their purity, I would say, take them there and keep them there, so we can have a chance to breed our black bees in their purity.

I think, if our American bee-keepers would select the best strains of black bees in breeding, and give them the same attention that they give the Italians, we would soon have a race far superior to the Italians. I think we have some as good reports in honey from black bees as from Italians. When at the National convention, in Cleveland, I heard Mr. Quinby say, the best yield of extracted honey he had was 361 lb. from one colony, and when asked what kind of bees, he said they were black bees. Black bees make a better quality of honey than Italians, much heavier in body. It was honey made by black bees that took the Thurber gold medal. How is it that the bee cholera was not known in America until the Italian bee was introduced? at least we never heard of such disasters before. Black bees were very little hurt with it in this locality, while the Italians were badly used up.

Is it not true, that many who "toot their horns" so loud for these bees have them for sale, at extravagant prices? The skilful breeder, that selects a superior strain of black bees, and breeds his queens with the same care as he does his Italians, is the man of whom I want to buy. I would say to you, Novice, that I don't belong to that class of unfortunates who seem to delight in being contrary. I only want to give facts.

A. J. FISHER.

East Liverpool, O., June 17, 1879.

I give place to the above, because some of our new readers may think we do not give both sides of every question. Our old readers know that the same ideas have been advanced over and over again, and that all those who held them have given up their position and recalled their statements, after a more faithful trial of the Italians. If I am not mistaken, every point mentioned has been refuted by careful experiments. I was present when Mr. Quinby made the statement referred to, but our friend does not give all of it. Mr. Q., at that time, very decidedly corrected the point our friend has made. Is it not rather uncharitable, friend F., to insinuate that those who recommend Italians do it because they have them for sale? Are you willing we should judge you in that way? The blacks do make the whitest comb honey, but it is because they do not fill the cells full, as do the Italians. Heddon, Bingham, Peters, who argued as you do, and all the rest, have now adopted Italians; and I believe they all keep bees solely for honey.

HOW TO GET BEES INTO THE HOUSE APIARY.

I have built a house apiary similar to the one illustrated in the A B C as yours. How am I to get the bees from the old box "gums" into the house? Some of them are one hundred feet from it at present. I can transfer from one hive to another, and have done so, but how am I to get the bees over that distance and not lose any?

DR. ASHTON.

Cuthbert, Ga., May 28, 1879.

[Transfer them into movable frames first; then leave one comb with a little brood on each old stand, and move the rest of the combs and bees into the house apiary. Every night, carry the remaining bees into the house, until all will stay with their queen.]

REPORT FROM GEORGIA.

POOR SEASON.

THE season for 1878 was, no doubt, one of the poorest known in the South for many years.

The spring was fine and warm, and the fruit bloom afforded a fine harvest for the bees, causing them to breed abundantly, and swarm early and late. The summer months were dry and hot, which produced a failure in the honey crop, and the fall crop was light; enough, however, to induce the bees to rear a heavy brood, which consumed their winter supply, and the result was, many swarms perished through the winter.

SEASON FOR 1879.

The season for 1879, thus far, has been very poor and backward; indeed, bees commenced to swarm about the middle of April, and are now gathering quite freely. We received a letter to-day from Italy, from the man who selects our queens for us. He writes that the season there is nearly one month later than usual. Bees, at this date, are gathering honey rapidly, and breeding abundantly.

COMB FOUNDATION.

While some would try to discourage the use of this invaluable article, we could not dispense with it any sooner than with a good smoker. We have tried that made by several parties, all very good; we have also tried that made upon tin foil, and find it very good indeed; not a particle did it sag.

We are now experimenting with it, compelling the bees to make a single comb one *solid cubic foot*; and if no preventing providence, will exhibit such if we live. What would you think of that, Mr. Editor, to see a comb of honey one solid cubic foot? Would you not think this was rather on the forcing system? But great and marvelous are the "works" of the "honey bee."

A. F. MOON.

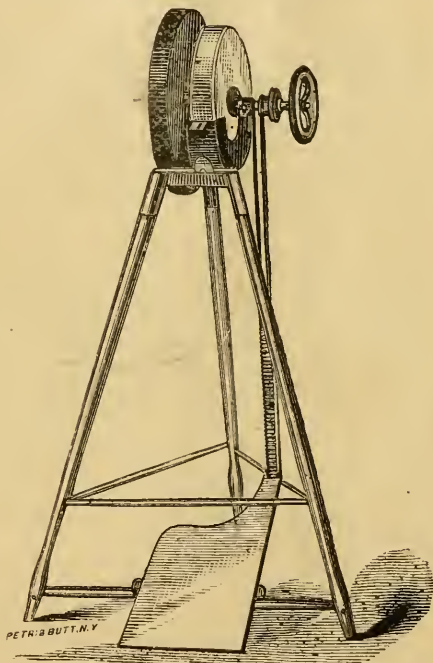
Rome, Ga.

If I should see a single comb of honey measuring one solid cubic foot, I presume I should think it was you that did it, friend Moon; for, from what I remember of the pyramid of honey I saw at the convention in Cleveland, you seem to be just the man to make the bees do it, if any one can.

KEEPING THINGS SHARP.

IF one wants to get along in this progressive age of the world, he must not only look sharp continually, but he must have sharp tools to work with. When I see any body trying to do something with dull tools, I sometimes wonder who is to be pitied most, such an one or one who has no tools at all. In so simple a matter as eating one's dinner, nothing contributes more to my good nature, than a sharp knife that will cut through anything you wish, without a large expenditure of time and patience. There is one particular reason why I always wish to get through my dinner quickly, and that is that there is a little "chick" right across the corner of the table, who invariably sings out towards the completion of this meal, "Bees, papa; bees, bees, bees," and there is no farther peace, until she has her little sun-bonnet, and is carried out into the apiary, and the whole matter shown up, and explained(?) to her satisfaction. I often take the pollen laden bees on my finger, and ex-

hibit them to her admiring gaze. One day she got through the gate, and tried catching them herself, which resulted in a sting on her little fat wrist. That made no difference, however, for she calls out "Bees," after dinner, all the same. Well, the other day it was very warm, and she and I were going to have some lemonade, but upon trying one knife after another, we could not find one that would slice the lemon, by dint of any amount of "sawing," and finally mamma brought us a great butcher knife, a little less than a yard long, and that was so dull, we came pretty near not having any lemonade at all. Soon after, I saw an advertisement of the machine shown below.



FAMILY GRIND STONE AND POLISHING MACHINE.

It is made by the Miller's Falls Manufacturing Co., and when I saw the price advertised for it, only *three dollars*, I thought it must be a mistake. We sent the money, and in due time, came a very pretty machine, all nicely boxed, which ought, according to the way machinery is generally sold, to sell for at least \$8. or \$10.00. It has an 8 inch grindstone, and a 10 inch emery wheel, and both are set spinning by simply pressing your foot on the treadle, by a device quite similar to the one used by Barnes Bros., for running their foot power saws. In fact, the idea popped into my head of putting a 10 in. buzz saw in place of the grindstone, attaching a table, and having a \$5.00 foot power buzz saw; but, amid the rush of business, I have not had a moment's time to do it, and so I give the idea to you. With this wonderfully neat little machine, it is just fun to sit down and sharpen and scour every thing about the household. A sponge is fastened against the stone, which prevents

its throwing water about when run at a high speed. The emery wheel can be removed in an instant. I have accepted the agency of the machine, and will send you one for just \$2.50; or for 6 subscribers at \$1.00 each. They are shipped from N. Y., at very low rates of freight, and it seems to me, in a year's time, they must be worth five times the cost to every family, to say nothing of their value to the bee-keeper, in keeping all his tools and himself, too, sharp and up with the times.

HONEY PLANTS OF FLORIDA.

"PINTS AND TEA-CUPFULS?"

IN the Apr. and May Nos. of GLEANINGS, I mention made of the Spanish bayonet (*Yucca gloriosa*), as producing cupfuls of honey. Those articles were quite interesting to me, as both that and the *Yucca Philamentosa*, or bear grass as it is called, grow wild here. They are the grandest flowering plants that I ever saw, having a perfect tower of pure white, waxy, pendant cups, often three feet high, that may be seen from miles away. I am not, however, prepared to set them as high in the list of honey producing plants as your brother and some others; yet they may deserve the place. Not having had occasion, until lately, to study the honey producing plants of Fla., I have never, until I saw them mentioned in your valuable paper, taken more than a passing notice of them. During the past three weeks, I have examined a number of the bayonets, and, so far, have found very little honey. In fact, some had scarcely a trace of it, even in the morning. It may be on account of the season, as, for some unexplained reason, we have had an unusually severe honey drought for the past six weeks. I will keep an eye on them in the future, and report; and if I find any of the fruit still hanging, I will forward some to you.

We have a plant now coming into bloom, however, that can be relied on. I refer to the saw palmetto (*Chameroops Palmetto*, I believe), which, with the cabbage palmetto (*Areca oleracea*), although being two of the best honey plants on earth, I have never seen mentioned in any work on bees or bee pasturage. The first is a low growing plant, covering thousands of acres of land, in this state, so densely as to be almost impenetrable. In fact, its removal is the main expense of clearing a great deal of our land. It has one large root from three to eight inches through, lying on or near the surface of the earth, with numerous small, tough feeders running straight down from the under side. The large roots are from two to twenty feet long and nearly as large at one end as at the other. At one end, and at intervals along its length, it puts up buds from which reach up long stemmed leaves to a height of 4 to 6 feet; also the bud puts out several (often as many as eight) branching fruit stems, large enough to fill a ½ bushel measure, and perfectly encrusted with small, yellowish white blossoms. These blossoms secrete large quantities of thick, light yellow honey of good quality. They are very sweet scented, filling the air with perfume, and the bees, forgetting every thing else, swarm upon them from daylight until dark.

The blossoms open about the middle of April, and last about two months. The fruit is a black, oblong berry, much resembling the date (to which it is re-

lated), and about twice the size of the concord grape. When ripe, it contains large quantities of saccharine matter, which, oozing through the skin, stands in large drops of thick honey on the outside, from where the bees take it to the hive. The berries ripen the middle of Oct., and remain on the stems until Christmas thereby furnishing the last crop of the season. During the early part of last winter, the bees filled every inch of space given them with this honey, and as it is dark, and thick as molasses, and has a peculiar taste, it was packed away by most of us to use to stimulate breeding after the orange blossom crop in Feb.

The cabbage palmetto in my opinion is the king of honey producing plants. It comes in about the first of June and lasts until Aug., producing immense quantities of clear white, beautiful honey, moderately thick and of a delicate flavor. It has clusters of flowers like the saw palmetto, only much larger, many of them too large to go into a bushel basket. The berries are of no account for honey.

We have a great variety of honey producing plants and trees. Conspicuous among them is the black mangrove. While it is in blossom a person may sail mile after mile up or down our rivers and be constantly within hearing of the hum of thousands upon thousands of bees all the way.

When we take into consideration the advantages which Florida enjoys,—the magnificent pasturage, the wonderful natural increase of our bees, the mild winters, and the easy transportation to the best markets of the world, we feel perfectly safe in predicting that this state will see the day when the products of her honey bees, like those of her orange groves, will be second to those of no state in the Union.

W. S. HART.

New Smyrna, Fla., May 12, 1879.

HOW TO "SPRING" BEES.

MY success in saving my bees this year was not in wintering, but in springing. I believe I should have lost heavily, if I had left my bees for spring, as I had them for winter, since nearly all bees came through to the 1st of March.

For winter, I followed GLEANINGS, using Simplicity hives, and chaff cushions at sides and on top. I packed outside with buckwheat chaff one foot thick, except in front, where it was 4 inches thick, from the 25th of Feb. to the 1st of March. When the weather would permit, I overhauled, and fixed for spring as follows:

Every colony that was on five cards of comb was forced on to three, if possible (I think it will generally be possible by placing the combs a little farther apart than usual), and the chaff cushions were crowded as close together as possible; those that were on four cards were forced on to two, if possible, etc. In other words, I fixed my bees for springing just as GLEANINGS directs for wintering, only, after fixing for winter, GLEANINGS says, "Let them alone." Now, in springing, don't let them alone, but watch them closely. If dysentery shows itself in any hive, take them out, give them a clean hive and a card of clean capped honey, and crowd them up with clean cushions, having some kind of cloth tacked on that side of the cushions which is next to the bees, but crowd them up, crowd them up, even if you get them on a single card of honey. If they have a good queen, they will show you how fast they can grow. I had one colony so small that I started

to double them in with another, but, when I saw the queen, changed my mind and gave them a nice card of capped honey between two cushions, and to-day they are a fine large colony.

Now, friend Novice, you have taught us how to winter our bees almost without loss, from Nov. until March; if you will teach us how to spring them from March 1st until May 10th, we will be all O. K. I think that it is just as necessary to fix them for spring as it is for winter.

On the 1st of March, friend Miner's bees were fully as strong as mine. On the 1st of May, he had but one or two left, while mine had been slowly but surely gaining in numbers. He left his just as he had wintered them, while I repacked every one of mine, except two which were in box hives, and which I intended to transfer as soon as I could; but they transferred themselves, by disappearing all at once, with lots of honey and more than lots of dead bees in the hive. Having learned how to winter, now let us learn how to spring our bees.

WM. L. KING.

Benton Harbor, Mich., May 31, 1879.

To all of the above I most heartily agree, friend K.

HOW QUEENS STAND A JOURNEY IN THE NEW SECTION QUEEN CAGE AND HOW TO INTRODUCE THEM.

ALSO SOMETHING ABOUT TRANSFERRING.

THE queen came in good time and in good order and has the appearance of a good queen in every respect. Friend Newkirk, an old bee man, was at my house when I received her, and helped me to introduce her to the family I had prepared for her, and he pronounced her the purest queen that he ever saw. Others looked at her and pronounced her the "boss". I am well pleased with her. The card of honey you put in the cage was in good shape and every empty cell had an egg in it. The queen was very plump and had the appearance of being full of eggs. I had no trouble in getting her accepted. I will tell you how I managed:

I received your postal the 5th, stating that she would be shipped that day. I prepared a colony of young bees for her reception, by taking six cards full of sealed brood, with the adhering bees, from a colony that was almost ready to swarm, and put them into a hive by themselves; then shook the bees off from 3 more cards from the same hive, into the hive with the 6 cards of brood, and I had quite a strong colony of young bees that had never been out into the fields. All that had been out would go back to the old home leaving all young bees in the colony for the new queen. They were without a queen twenty-four hours, and, by that time, were glad to receive another. I don't think they would have hurt her if I had liberated her at once; but I thought I would not take any chances, so I put her into a cage, hung her in the hive, left her 24 hours, and then let her out on the combs. She had only nicely got out before they began to feed her. They seemed to be as pleased to receive her as I was to have them do so. In about 2 hours after liberating her, I looked after her and found her all right. I put her back, and left her over night and looked again in the morning, and found her all right and doing business. My bees are doing nicely this spring. I went into winter quarters with 26 colonies,

and came through with 22—19 strong and 3 weak. I have to-day quite a number of colonies working in sections, storing them with clover honey.

Reading GLEANINGS, June No., under the head, "Transferring," brought to my mind my experience. I transferred 10 colonies this spring in fruit blossoming time. I commenced in the afternoon when the bees seemed to be out in the field. When the bees came in, they concluded to work nearer home, and they made it red hot about where I was. I used the smoker, and with the assistance of my wife, I got through with one swarm without much loss. I had nine more to transfer and it must be done the next evening. After the bees had got through with their day's work, I went around to each hive and shut them in, and the few that were out came in loaded, and could not get in to unload; so, you see, I had it my own way, and I could transfer in good shape, one swarm each evening.

I see the question asked, "How much of the old comb shall be used?" My opinion is, just what has brood in it, and what you can get into your frames straight and nice, and no more. When you can get foundation for 50c per lb., the comb that is not straight is worth more for wax than any thing else.

C. E. WALDO.

Grand Ledge, Mich., June 12, 1879.

BEE BOTANY AND ENTOMOLOGY.

PAULONIA IMPERIALIS.

I enclose you a blossom, and other parts of a tree that is known here as Paulonia. It is a profuse bloomer, and secretes quantities of honey. Its general appearance is somewhat like the catalpa, but it bears no beans. I don't know the quality of the honey, but for quantity, I know of nothing better. There are no leaves on the tree yet, but the bloom is thick enough to give some shade. The tree is a rapid grower and attains a good size. If you know anything about this tree you will confer a favor by giving it in GLEANINGS.

Goldsboro, N. C., Apr. 24, '79.

T. B. PARKER.

Many thanks, friend P. Two of the above trees are planted in our yard, and we have been looking for those wonderful blossoms for the last 5 years. The trees were bought expressly for the honey they bear, but I fear we are too far north, as they almost invariably die down to the ground every winter, and then send up a powerful shoot in the spring. These shoots have sometimes grown 10 feet in a single season. The immense leaves, often a foot wide by two feet long, attract much attention from passers by. One of the trees has stood unharmed for the past two winters, and we have been confidently looking for blossoms this spring. Who can furnish us with plants and seed? Ours came from a Mr. Cooey, on Manchester Island in the Ohio river.

YUCCA OR SPANISH BAYONET.

In your April No. of GLEANINGS, you say that the blossom of the yucca, or Spanish bayonet, or rather *Spanish Dejo*, as it is called in Texas, yields tea-cupfuls of honey. Now it may do so in Texas or other states, but it seems to me it don't produce any honey here in Ill. There are more than twenty yuccas in bloom here in different private gardens, but not a single bee have I ever seen on them. How did your experiment come out with one of these beautiful flowers? You promised to tell us in next number, but you forgot it, I presume.

M. KUENNE.

Olmsted, Ill., June 13, 1879.

We have been informed from several sources that this statement is a mistake, but it is quite likely that the plant, like many others, bears honey in some localities and not others. A pair of the yuccas are now in our garden, but they will probably not bloom this season.

ROBBING AND SWARMING OUT—A NEW FEATURE.

I HAVE just had a new experience with bees. I supposed I had learned some of their tricks, but I give it up now. Mr. Ramage, a near neighbor of mine, has a very strong swarm of bees, which commenced robbing mine in early spring when first set out of cellar, every warm day through March and April. They first robbed 2 swarms of another neighbor, and took home with them both bees and honey, thus making them doubly strong. They were in a large box hive, and had ample room, and bred up very fast.

They have kept at my bees so much, that they could not go out to gather pollen at all, and I had to keep them closed up most of the time through the middle of the day, but they watched closer than I could, and finally cleaned out 2 medium swarms in April, then kept at the others constantly, early and late. It was nothing but fight and sting, from morn till night. I closed the entrance to within one inch, but finally they beat 2 heavy swarms and killed the queens, and the bees joined them as the others had done. I saved most of the honey in the last two by taking them in the house.

I offered to buy the swarm, but could not. I then offered to divide them, transfer, and furnish him a queen for the one part—anything to break them up. He was very willing to do whatever could be done to stop their mischief; so, on the 10th, as I noticed honey coming in lively from plum and apple blossoms, and plenty of drones flying, we divided them, giving the old stand their own queen, and the new one my queen, enclosing each in a wire cage. But now comes the puzzle; just as we were shaking the bees from the skeps, in front of the hives, there was an unusual buzzing, the air seemed full of bees, and I noticed another swarm alighting with them, and saw at once, they were my two banded hybrids; and still another swarm of black bees pounced down and clustered in the pile. I at once caught and caged both their queens, and placed them in my pocket. I hastened home, and, as I suspected, 2 hives were empty. The hybrid swarm was a heavy one in a 10 frame hive, and on examination, four frames were filled with capped brood hatching, eggs, and larvæ in all stages, and 5 frames of heavy sealed honey. The black swarm was a medium one, had 3 frames of eggs, larvæ, and hatching brood, and 5 frames of honey. When I left home at 12 o'clock, both were carrying in pollen lively. Did such a thing ever happen before? and what is the cause of it? Was it the great hum, or the smell of honey? or did my swarms help them all the time in their robbing, and joined them out of sympathy?

I placed my queens in their respective hives, carried the hives over and shook in a portion of the mass of bees in each, closed them up, and took them out 3 miles to my father-in-law's, smoked them well, and released the queens, and in ½ hour they were carrying in pollen. Did I do right, or what should I have done? The robber swarms are situated ¼ m. from mine.

E. A. MORGAN.

Arcadia, Wis., May 12, 1879.

I think the original cause of such robbing, was weak stocks, unable to defend themselves, and after the strong colony got to going in this way, it was hard for them to stop. Your colonies that swarmed out, would have been very apt to swarm out any way, and they went over to your neighbor's,

where you were transferring, because—because—, well, I think they went over there because bees, when they swarm out, most always do go over to some body's apiary, who can keep bees better than their owner. If any body can give any better explanation for the queer doings of these bees, let him stand up.

P. S.—Will he please tell us while up, how bees know that there is an apiary a half mile, or a mile away? especially, how does the queen know about things out doors, when she always stays inside of the hive? that is, if she really has anything to do with governing the swarming out, and the direction in which the bees shall go.

CHAFF HIVES DURING THE HONEY SEASON.

ALSO SOMETHING ABOUT PATENT HIVES.

I HAVE been experimenting somewhat this spring and have observed one thing, that, although written up many times before, has not been emphasized sufficiently, I think.

We advocate protecting bees from the cold blasts of winter, and the scorching rays of the summer sun, but the intermediate temperatures we say but little about. I had one colony, this spring, in a Langstroth hive, so reduced in numbers that all must stay at home to keep the brood warm and alive, no increase in stores being possible. This seemed to manifest itself particularly on windy days, of which we have had many this spring. I removed them into a chaff hive, and ever since then as many workers have gone out from this colony as from others twice as strong.

I transferred two very strong colonies, last week, from old boxes to chaff hives. They had stored almost no honey, although we have had a good supply of white clover for two weeks, and fruit blossoms were plentiful in their season.

Quite a number of the bee raisers on a small scale had become enthusiastic over the plan of enclosing their box hives in a large box, placing them in a barn or other out-building, and allowing the bees to build surplus honey on the outside of the hive. Last season, large stores were obtained in this way. This spring, many of these colonies were destroyed during the robbing mania. The cause is doubtless apparent.

Most people here have a supreme contempt for any kind of a hive that assumes to be more than a cubical box, with two cross-sticks, and it seems but natural that such should be the case. A few years ago, a man by the name of Moon, I believe, divided the bees about all out of existence. What few survived this ordeal, fell a prey to moths in the Thomas hive, farm rights of which were sold all over the county. Mitchell has been here also.

Odell, Ill., June 9, '79.

J. L. HARTWELL.

It is said that Millard Fillmore, when he was Vice President, on receiving a box of honey from an old friend in the country, paid the following simple and touching compliment to the modern system of bee culture:

The honey is uncommonly fine, and its pure sweetness enhanced by the thought that no life of the little, industrious insects—a splendid pattern for man in his highest condition to follow—was sacrificed by depriving them of this portion of their precious hoard.

UNITING BEES. Uniting colonies is much like introducing queens, inasmuch as no fixed rule can be given for all cases. It is a very simple matter to lift the frames, bees and all, out of one hive and set them into another, where the two are situated side by side. Usually, there will be no quarreling, if this is done when the weather is too cold for the bees to fly, but this is not always the case. If one colony is placed close to one side of the hive, and the other to the other side, and they are small enough for a vacant comb or two between them, they will very rarely fight. After two or three days, the bees will be found to have united themselves peaceably, and the brood and stores may then be placed compactly together, and your chaff cushions put in at each side. If there are frames containing some honey, that cannot be put in, they should be placed in an upper story, and the bees allowed to carry it down. You should always look to them 20 minutes or half an hour after they are put into one hive, to see if everything is amicable on "both sides of the house." If you find any bees fighting, or any doubled up on the bottom board, give them such a smoking that they cannot tell "which from t'other," and after 15 or 20 minutes, if they are fighting again, give them another "dose," and repeat until they are good to each other. I have never failed in getting them peaceable after two or three smokings.

If you wish to unite two colonies so large that a single story will not easily contain them, which, by the way, I feel sure is always poor policy, or if their honey is scattered through the whole ten combs in each hive, proceed as before, only set one hive over the other. If this is done on a cool day, and the bees are kept in for two or three days, few, if any, will go back to the old stand. If the hives stood within 6 feet of each other, they will all get back without any trouble anyway, for they will hear the call of their comrades who have discovered the new order of things. Sometimes you can take two colonies while flying, and put them together without trouble, by making the lost bees call their comrades. Only actual practice and acquaintance with the habits of bees will enable you to do this, and if you have not that knowledge, you must get it by experience. Get a couple of colonies that you do not value much, and practice on them. As I have said all along, beware of robbers, or you will speedily make two colonies into none at all, instead of into one.

WHAT TO DO WITH THE QUEENS.

If one of the colonies to be united has been several days queenless, all the better; for a queenless colony will often give up its locality and accept a new one, by simply shaking them in front of a hive containing a laying queen. From a hive containing neither queen nor brood, I have induced the whole lot to desert, and go over to a neighboring colony, by simply shaking the bees in front of it. They were so overjoyed at finding a laying queen, that they called all their comrades to the new home, and all hands set to work and carried every drop of honey to the hive with the fertile queen. By taking advantage of this disposition we can often make short work of uniting. If you are in a hurry, or do not care for the queens, you can unite without paying any attention to them, and one will be killed; but, as even a hybrid queen is now worth 50c., I do not think it pays to kill them. Remove the poorest one and keep her safely caged, until you are sure the other is well received by the bees. If she is killed, as is sometimes the case, you have the other to replace her. Where stocks are several rods apart, they are often moved a couple of feet a day while the bees are flying briskly, until they are side by side, and then united as we have directed. This is so much trouble, that I much prefer waiting for cold weather. If your bees are in box hives, I should say your first job on hand is to transfer them. If you have several kinds of hives in your apiary, you are about as badly off, and the remedy is to throw away all but one. My friends, those of you who are buying every patent hive that comes along, and putting your bees into them, you little know how much trouble and bother you are making yourselves for the years to come.

In conclusion, I would advise deferring the uniting of your bees until we have several cold rainy days, in Oct., for instance, on which bees will not fly. Then proceed as directed. If you have followed the advice I have given, you will have little uniting to do, except with the queen rearing nuclei; and with these, you have only to take the hives away, and set the frames in the hive below, when you are done with them. If the hive below is a strong one, as it should of course be, just set the frames from the nucleus into the upper story, until all the brood has hatched. If you wish to make a colony of the various nuclei, collect them during a cold day, and put them all into one hive. If you have bees from 3 or 4, they will

unite better than if they came from only two hives, and you will seldom see a bee go back to his old home. A beginner should beware of having many weak colonies in the fall, to be united. It is much safer, to have them all strong and ready for winter, long before winter comes.

UNITING NEW SWARMS.

This is so easily done, that I hardly need give directions; in fact, if two swarms come out at the same time, they are almost sure to unite, and I do not know that I ever heard of two such swarms quarreling. One of the queens will very soon be killed, but you may easily find the extra one, by looking for the ball of bees that will be found clinging about her, very soon after the bees have been joined together. A swarm can almost always be given without trouble, to any swarm that has come out the day previous, and if you will take the trouble to watch them a little, you may unite any swarm with any other new swarm, even if it came out a week or more before. Smoke them when inclined to fight, as I told you before, and make them be good to the new comers.

UNITING BEES IN THE SPRING.

Since our spring dwindling troubles, it has been quite customary to unite a stock that has become queenless to one having a queen, or to unite two or more weak stocks, to enable them to go through the spring months. The process is much like uniting in the fall. Lift out the frames and put them together, watching to see that they are friendly to the new comers. Bees are often united in the spring for the purpose of securing great results in honey, and by uniting the bees and brood, great amounts may be obtained from what might be called a single swarm.

WATER FOR BEES. That bees need water has been pretty well demonstrated, but the best means of supplying them has not been very satisfactorily settled. The amount of water needed depends much on whether they are rearing brood in considerable quantities or not, and whether their food is old, thick (possibly candied) honey, or new honey right from the fields. If the latter, it contains usually a large quantity of water that must be expelled before the honey can be considered ripened. See VENTILATION. Well, while the bees are gathering this thin, raw honey, as a matter of course, they will not need much water, if any at all, besides what the honey affords them. This new honey is frequently so thin

that it runs out of the combs like sweetened water, when they are turned horizontally, and when tasted, it seems, in reality, but sweetened water. The excess of moisture is probably—I say probably, for I do not know that we have positive proof on the matter—expelled by the strong currents of air the bees keep circulating through the hive, which takes up the watery particles, and speedily reduces the honey to such a consistency that it will not sour. If you will examine a hive very early in the morning during the height of the honey season, you will find the blast of air that comes out quite heavily charged with moisture, and when the weather is a little cool, this moisture often condenses and accumulates on the alighting board, until it forms a little pool of water. Where the alighting board was of the right shape to retain the water, I have seen it so deep as to drown bees in passing out. These bees, it would seem, were at least in no need of having water supplied them. While I am on the subject, I will mention another way which, as I have discovered, the bees have of expelling the liquid portions from very thin honey. I guess I will say it is the way in which I *think* they do it, for I may be mistaken. I had several colonies in a small greenhouse for experiment. They were fed on sweetened water, until they stored a large amount in their combs. When the sun warmed up the air in the morning, they would come out in great numbers and sport in the sunshine, and by taking a post where they came between my eye and the sun, I distinctly saw them discharge from their bodies, what seemed to be only pure water. These bees had been fed until they had their hives so full of the thin syrup, that they had even crowded out the eggs. When coming out of their hives, they seemed heavily laden, but those returning were so much reduced in size, as to make quite a contrast to those going out. By watching the matter, it seemed quite plain that they took the thin food into their stomachs, and after a time, longer or shorter, were able to expel the liquid portion while on the wing, and then return the thick portion to the cells. If I am in error in this, I should like to be corrected. It may be well to state in this connection that honey, no matter how thin, will never sour while in the hive, under the care of a sufficient number of bees, but if a comb of this thin honey be taken away from them, and kept outside of the hive, it will sour very quickly.

As the following little sketch given in GLEANINGS, in July, 1874, gives a vivid idea of one way of giving bees water, and of the way they use it, I give it entire.

WATER FOR BEES.

"They are robbing the Quinby hive, now," Mrs. N. had said to Novice who was suffering from a "tormented headache," to use his own expression, one pleasant Sunday afternoon in May. He had often boasted *he* didn't have headaches, and seemed, so the women folks say, to regard the matter as a kind of feminine weakness that one should be ashamed of, but now he was making more of a row about it than a whole dozen of the weaker sex; besides this, some neighboring black bees had just discovered that a quantity of combs of nicely sealed sugar syrup were but poorly guarded by a few miserably weak Italian stocks. Under the circumstances, Mrs. N. and Master Ernest had been directed to close the entrances of such hives as failed to make a successful resistance, by banking the saw-dust up in front. They soon reported that the robbers were going out and in under the cover of the Quinby hive, it having warped enough to allow this. In this dilemma, Novice was again consulted, and was obliged to cease rolling and tumbling on the bed where he lay, long enough to direct that stove wood be piled on the cover until the cracks were closed. This was done, and Mrs. N., for additional security, placed on the centre of the top of the hive a large stone jar, inverted.

When Novice awoke next morning at about his usual hour—5 o'clock—although a little sadder than usual, and perhaps wiser, his head was free from pain, and he, of course, repaired at once to the apiary, the scene of yesterday's troubles and turmoils.

A refreshing shower, which had been much needed, had materially changed the aspect of things, and as the locust blossoms had opened during the night, all robbing had ceased and every thing was lovely.

On turning his eyes toward the Quinby hive, which stood under the shade of a dwarf pear tree, he beheld a perfect circle of bees for all the world like beads strung on a string, greedily sipping the rain water from the concave bottom of that inverted stone jar. It was raised up so they could find it readily, was clean, and so shallow it could not drown them, and altogether seemed just the thing. Later, after Blue Eyes was up, the numbers had increased, and so intent were they on sipping the pure water, that

she could touch them with her fingers without their scarcely noticing the interruption. Of course the supply was soon out, or would have been had we not replenished it; the concavity held about a tea-cupfull, and Miss Maudie was commissioned to see that they did not "get out." But they did for all that; for during hot days, several tea-cupfulls were needed, partly on account of evaporation, and it only remained for Novice to devise a cheap and simple mechanical arrangement to keep constantly full the shallow cavity in the bottom of that stone jar. This he did very quickly by filling a quart glass fruit jar with water; a piece of paper was laid over the mouth until it could be inverted on the stone jar, and then the paper was drawn out. Of course when the water became exhausted so as to allow a bubble of air to go up into the jar, a little more water came down, and so on. A quart of water lasts several days, and the receptacle being glass, we can always see when it needs replenishing. We were amused this morning to see the usual number of bees around it, and more going and coming quickly, even though it was *raining* quite briskly. Many of the bees were quite young Italians that, it seems, had become so accustomed to going to a certain spot for water, that they couldn't think of doing otherwise even though water was raining down all about them. We are well aware the principle of the above is not new, as feeders on a similar plan are in use, but the plan of supplying fresh water is new, at least to us. We have in former years tried arrangements with shavings, water allowed to drip on a board, and a cloth laid over a vessel full of water, but all of them were soon abandoned because they were too much trouble, or were untidy, etc., and the bees were allowed to go to distant muddy streams, to the pump, etc. Is it not a fact that during the working season the workers mostly fail from worn out wings? and, if this is the case, should we not save them all we can by having supplies near at hand? at least water, if we can do nothing further?

Our 4000 basswood trees were planted with this end in view; that is, to give them as much forage within one fourth mile of their hives, as they usually get in an area of one and a half or two miles around their hives.

The device we have mentioned can of course be used for out door feeding, and it is perfectly secure from waste; by inverting a tumbler of syrup in a saucer, we can also use it for feeding in the hives, when there

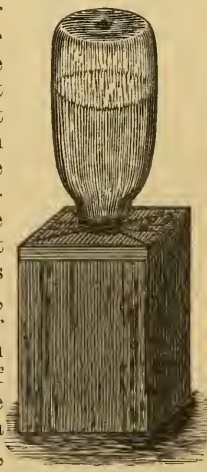
is no occasion to feed rapidly. This latter plan has been given several times in print already.

If the bees that frequent your water jar come in large numbers, it may not flow from the jar fast enough, unless the mouth is raised slightly; this we do by means of a few bits of window glass.

IMPROVEMENT ON THE ABOVE.

The above was written just about four years ago, this present month. I have just been improving on it a little, and below, submit the arrangement as we have it in the apiary now, for watering bees. Get a piece of board about 1 foot square, and with a saw, or saws, such as we use for grooving the ends of the pieces composing the section boxes, plough grooves from one end of the board to the other, being careful that they do not run quite out. Now, with a single saw, cut a groove from each corner to the opposite one, and a couple more across the

grain of the wood, near the middle, and the board is done. These grooves should be about $\frac{1}{4}$ inch deep, and about the same distance from each other. Invert the jar of water on the centre of the board, and the grooves will keep just full of water, as long as any remains in the jar, and yet they will never run over. The bees can stand on the walls of wood that separate the grooves, as well as on a sheet of their own comb, and with as little danger of getting daubed, or wetted. Now this arrangement makes per-



WATERING JAR
AND BOARD, OR
OPEN AIR
FEEDER.

haps the best feeder ever invented, for open air feeding (see FEEDING and FEEDERS); for all we have to do is to use sweetened water, instead of water only. Put a pound of coffee sugar in the jar, fill up with water, cover it with your hand, and shake briskly, and it is ready for business. Lay a paper over the mouth of the jar, as before, invert it on the centre of the board where the grooves cross, draw out the paper, and, if it is at a time when robber bees are hovering about, some one will soon find it. After the first bee has gone home with one load, he will bring others back with him,

and pretty soon, the board will be covered with them, sipping like a lot of pigs out of a trough. As the syrup goes down in the grooves, air will be allowed to come in, and you can see, by the bubbles rising in the jar, just how fast they are taking the syrup.

I have just been watching one of these feeders (May 31, 1879), and after the bees got well at work, a bubble would be on its way to the surface in the jar, almost constantly, and the liquid was carried off by the little fellows, at the rate of about 1 inch in 10 minutes. This would empty the $\frac{1}{2}$ gallon jar in about an hour and a half. Not a bee is daubed, and they flit away to their hives, as easily as if they had loaded up from the blossoms on the trees. This feeder answers admirably for feeding grape sugar, for all we have to do is to fill the jar with lumps of it, and pour in water until it is filled, and then invert as described. The passage of the bubbles upward tends to dissolve the sugar rapidly. Old, thick, or candied honey may be fed in the same way, and when the bees stop, the feed stops coming down into the grooves. This will perhaps be the best arrangement we can have for feeding grape sugar to keep brood rearing going on, during a season of drouth or scarcity.

In the above engraving, the jar and board are represented as standing on a block of stone, but they may be placed on a box or block of wood as well. We keep the device a few rods from the apiary, under a clump of trees, to call away the robbers from about the hives. Of course, the arrangement may be placed inside the hives, by putting in a division board, or setting it in an upper story.

If you wish to give them a supply that will last them a month or more, it may be well to get a large glass bottle or carboy, at the drug store, and your bees will then have water during the season, all they can use. Where there is a spring near you that can be conducted to the apiary, a very pretty watering place can be made. Be sure that it is so arranged that the bees cannot get drowned. A little fountain, where the spring is high enough to allow it, is a very pretty addition to the apiary. I once had one made with an iron vase, perhaps eighteen inches across. This basin was always full, and overflowing slightly, and during the warm weather all summer long, bees would be sipping the water around the edge; sometimes they stood side by side clear around the edge of the vase, making a sight

that was enough to call forth exclamations of surprise from almost any body, bee keeper or not. The fountain was supplied with water from a large pine box, placed on the roof of the wood house and itself supplied by the eave spout from the upright part of the building. When the box was full, it ran over on the roof and down into the cistern as usual, so the arrangement required no special supervision, so long as we had rain as often as once a week. The connection between the box and the fountain near the apiary was by $\frac{1}{2}$ inch iron pipe. The bees never drowned in this fountain because the vase was always full and overflowing. If a bee flew in, or got pushed in by his companions, he soon buzzed over to the side and walked out, having no perpendicular sides to climb up. Below I give you an engraving of the vase and fountain.



FOUNTAIN FOR GIVING BEES ACCESS TO WATER.

You will observe a stop cock at the lower part of the jet. This is for the purpose of regulating the supply of water. During a dry time, it is to be turned so as to just keep the vase full, and the same during windy days, when the water would be blown away. When we had still evenings, the jet was opened so as to throw a stream perhaps six feet high. Around the fountain we had flowers of different kinds. It is hard to imagine a prettier adjunct to an apiary than a watering fountain surrounded with flowers humming with busy laborers.

During some experiments in the same greenhouse I have mentioned, I put a small colony into the lamp-nursery, and warmed it up until their hive indicated over 100 degrees. The bees then went out, and began

flying around the room as if in quest of something. I fixed the same watering jar I have mentioned in one corner of the room, and they pretty soon found it and were busy carrying water into the hive as fast as they could load up and unload. By turning the lamp up or down so as to increase or diminish the temperature, I could easily make them stop and commence carrying water, at pleasure. Does not this seem to indicate that hives should be shaded, during the extreme heat of the summer weather? Colonies in the same room whose hives were not warmed showed no disposition to gather water at all, although they were rearing brood in considerable quantities.

SALT WATER FOR BEES.

At times, bees unquestionably show a fondness for salt water, and I presume they should have access to salt in some way, as well as others of the animal kingdom. It is generally agreed, I believe, that cattle, horses, sheep, etc., must have salt, or they will suffer. I know of no reason why bees should not come under the same law. They seem to have a preference for it in a much diluted form, and are very often seen eagerly hovering over barrels containing refuse brine. I have seen them eagerly digging in the sawdust, where brine had been spilled or thrown out, showing their craving for it. Within the past year, 1879, a great many plans have been given for feeding bees salt, but none of them are any simpler or easier, than the one for giving them water, which I have already illustrated. It may be well to have two watering places, one with the water slightly salted, and the other of pure water; you can then easily tell which your bees prefer.

If no place is furnished for the bees to get water, they usually go to creeks or puddles near by. Our own have quite a fashion of congregating about the kitchen pump, and Mrs. R. says she knows they hear the pump, for just after water has been drawn, they come in considerable numbers and sip the water that is spilled on the stones. Some of our subscribers have complained that they could not keep their bees from going to their neighbor's pumps, and thus annoying them. I think you will have no difficulty if you provide an arrangement such as I have described, and keep water in it during the whole warm season. It may take them some little time to get used to going to the precise spot, but after it is once learned, they will never forget it. Look out for the comfort and convenience of these little

friends of ours, and they will, in time, contribute to our comfort and convenience.

WHITEWOOD (*Liriodendron Tulipifera*). This is often called the tulip tree, I suppose from its tulip shaped flowers.

After I had written the above, I concluded I did not know very much about the whitewood, especially the blossoms, and as I had directed our engraver to copy engravings of the ROCKY MOUNTAIN BEE PLANT, the MOUNTAIN SAGE, and TEASEL, from *Cook's Manual*, I concluded I would get my observations and pictures this time, from nature; and so I deserted my type writer and traveled off into the woods. At length, I found a

tree, but there were only buds to be seen, not blossoms. It must be too early in the season; but hark! whence come those sounds of humming-birds, and humming bees? Whence, too, comes that rare and exquisite perfume? I looked higher, and away in the misty top of the tree, I thought I discerned, by the light of the setting sun, multitudes of bees flitting about. Oh that I were just up there! I looked at the rough trunk of the tree, and meditated that I was a boy no longer, but a man of 40, or would be in a few months more. I might get up to that first limb,—after a good deal of kicking and puffing, I got up there. The next was a harder pull yet, but soon the limbs were



LEAF, BUD, AND BLOSSOM OF THE WHITEWOOD, OR TULIP TREE.

thicker, and finally, I began to crawl upward with about as much ease as our year and a half old baby goes up stairs, whenever she can elude maternal vigilance. Up, up, I went, until, on looking down, I really began to wonder what that blue eyed baby and her mamma would do, should my clumsy boots slip, or a dead limb break unexpectedly. Now I was in the very summit of the tree, and Oh, what a wonderful beauty I saw in those tulip shaped blossoms, that peeped from the glossy green foliage all about me! No wonder there was a humming. Bumblebees, gaudy colored wasps, yellow Italians, and last, but not least, beautifully plumaged humming-birds, were all rejoicing in a field of sweets. Every now and then, one of the latter paused before my very face, and, as he swung pendulously in mid air, winked his bright little eyes, as much as to say, "Why, what on earth can you be doing away up here in our domain?"

I picked off the great orange colored, mottled blossoms, and looked for the honey. I presume it was the wrong time of day to expect much, but the inside of those large petals, seemed to be distilling a dark kind of dew, that the birds and insects were licking off. It tasted to me more like molasses than honey. In the above cut our engraver has tried to show you what I saw in the tree top.

As the sun had gone down, I commenced in rather an undignified way to follow suit, and after resting a little, limped home. Although I was stiff and sore, I carried an armful of whitewood blossoms to surprise the good folks who, probably, had never dreamed of the beauties to be seen only in the tree tops.

Our friends in the South have a great deal to say about what they call "poplar honey"; and, if I am correct, the poplar is the same tree which we call whitewood. It blossoms with them in April and May. I know what

time it blossoms here, for I thought about its being the 27th of May, when sliding down out of that tree. A few days ago, I received some bees from G. W. Gates, of Bartlett, Tenn. The combs were filled and bulged out with a dark honey, such as I have described, and the bees had built fins of snow white comb on the cover of their shipping box. From this, I infer the honey must be yielded in great abundance in those localities. I have seen it stated, that the large flowers sometimes yield a spoonful of honey each. As the tree is often used for ornament, I make the following extract from *Fuller's Forest Tree Culturist*.

LIRIODENDRON TULIPIFERA (Tulip-tree Whitewood).

Leaves smooth, on slender petioles, partially three-lobed, the middle one appearing as though cut off; flowers about two inches broad, bell-shaped, greenish yellow, marked with orange; seeds winged, in a large cone-shape cluster, which falls apart in autumn. The figure shows a single seed as it appears when separated from the mass. It blooms in May and June, and the seeds ripen in late summer or early autumn, and should be sown as soon as ripe in good, moderately dry soil. They may remain in the seed bed two years, if desirable, but should receive a slight protection the first winter; tree of large size, sometimes 130 feet high, with a very straight stem; wood light color, greenish white, soft and light, not hard enough to receive a polish. It is much used in cabinet work, and for making panels for carriages, and for any inside work where toughness or a hard surface is not required. There is perhaps no native wood that will shrink more in seasoning than whitewood, for it not only shrinks sideways, but endways as well; but when once thoroughly seasoned, it remains fixed, and does not warp or twist like many of the hard and tough kinds of wood. There is also much difference in character of the wood coming from different sections of the country, and mechanics who are conversant with the various kinds and localities will readily tell whether specimens came from the West or East. The latter is of a light greenish color, grain not so smooth and soft, and sometimes rather tough. To produce good timber, the soil should be deep and rich, and on such the trees will grow very rapidly. The wood is little used, except for the purposes mentioned above, consequently it is only large trees that will be of much value. It is one of the most beautiful ornamental trees we possess, growing in a conical form, and producing an abundance of its beautiful tulip-shaped flowers in spring. The roots are soft and sponge like, and it requires great care in removing to insure success. Frequent transplanting in the nursery is the best method for preparing the trees for future removal.



The question is often asked, "Is whitewood good for bee-hives?" It may do for sections and honey boxes, but it is very unsatisfactory for hives, for the reasons given in this extract.

HOW TO USE THE COLD BLAST SMOKER

Get some dry rotten wood, something that you can break up easily with the hands, and that is sufficiently dry to be lighted easily with a match. Fill the smoker full of wood broken up moderately fine, especially that portion of it that is put in around the door. Close the door, and turn the slide around so as to have only the small draft hole open. Now light your match, and hold it before the draft hole, your smoker sitting on the table, hive, or any support. The blaze of the match will not go in and light the wood, of course; but if you work the bellows while keeping the match before the draft hole, the blaze will shoot in and ignite the rotten wood in a twinkling. Keep blowing for a minute, and I think you will be satisfied with the amount of smoke. When you want the smoker to go out, turn the ring so as to close the damper. It should never go out otherwise, if it is in proper order, and your fuel right.

If you wish to burn rags, make them into a long roll, something like a sausage—I beg pardon for the comparison—a slim bag, stuffed with refuse rags such as you can buy at the stores for a cent a lb. Coil this roll of rags around the smoker inside, in a sort of cork screw shape, so that no fold touches the next, the lower end coming just before the draft hole; it will now burn slowly until all is consumed, or until the draft is turned. If you let one fold strike the next, it will give more smoke, but of course will not burn so long. The cone will, in time, get filled up with soot, and to have the smoker burn freely, this must be cleaned out when necessary. It is easily removed, with a stick of the proper shape. If you want a great quantity of smoke, when you set your smoker down, set it so the wind will blow in at the draft; ordinarily I should turn it from the wind, to save the fuel. Should the slide at any time turn too tightly to suit you, take out the screws and bend the tin so as to make it work more loosely.

If you do not make your smoker work nicely with these instructions, write me and tell where the trouble is, and I will see to it, and write some more directions.

Judging from experience, I think it will be a good idea to go out into the woods with a wagon, and get a good lot of nice rotten wood. To rotten elm we rather give the preference. If you haven't a place where you can keep it dry, build a small house on purpose for it. Lay it out in the hot sun, until it is perfectly dry, or dry it in an oven. After you have got it dry, do not leave it out in the rain. If you are awfully careless, get your wife to help you to remember.

THE GROUNDS AND SHADE OF THE APIARY.

THE importance of shade being well known, of course it occurs to the bee-keeper to place his hives under the shade of low, spreading trees. Upon doing so he finds that, taking the year through, the unprotected hives do just as well as those completely shaded at all times. The facts therefore seem to be these: 1. *Sunshine is very profitable to the bees a portion of the time.* 2. *Shade is very profitable a portion of the time.* The two about balance each other, if at odds; but can we not have both in their proper time? A small shade, so arranged that the morning and evening sun will look around behind it, is the solution usually recommended at present. The following are some reasons why we should not accept this as a finality:

1. On blazing afternoons, the sun looks around altogether too soon. 2. In actual practice, part of the top and one side of the hive is apt to be exposed to the very hottest of the sunshine. 3. We have some fiercely hot spells before the grape, or anything else usually used for small shades, gets foliage enough to be of much use. 4. Very many noondays are cool enough so that sunshine, rather than shade is profitable to the bees. We err a little by thinking too much of our own sensations. We want our apartments at 70°, while the bees want theirs at about 100°. A man, therefore, if inclosed in a dry-goods box, would want it shaded much more of the time than the bees want their hives shaded. Put a thermometer in an empty hive and expose it to the sun. Whenever the mercury rises to nearly 100 degrees, hives should be shaded; otherwise, probably not. With the air outside at—say 60°, sun shining and honey in the fields, it is desirable that as many bees as practicable should go out and gather. If the hive is shaded, bees may be kept at home for no other purpose than to keep the brood nest warm by animal heat. Every degree of heat obtained from the sun at such a time releases bees to go after honey. This thought is recommended to the fraternity, as a very important one. Don't make your bees stay at home to warm up the hive to its needed 100 degrees with their idle bodies (consuming honey as fuel) when the sun stands ready and willing to do the warming. Of the 2000 working hours of a bee's year, probably less than 100 hours are so hot that shade is urgently needed, while 1500 hours are so cool that heat is a benefit. If this be correct, all fixed shades, including vines, annuals, and trees, come too near to doing as much of harm as they do of good. The number of days in a season, when bees suffer serious harm from the heat, being quite small, if the right kind of a shade was at hand, ready to be pulled on if needed, it might be left untouched for weeks at a time; and the amount of time absolutely required to attend to the matter need not be very great.

The writer has not worked out the details of the problem, but he believes they can be worked out so that one can pass through the apiary just at the proper time and turn on the shade. One pull of the hand should suffice to shade a whole group of hives. At night, the same shades should be set so as to act as reflectors to catch and throw down the rays of the morning sun. We don't want loose boards. It is too much fuss to handle them, they warp, a gale sets 'em flying, and they hit too hard. Some combination of post and hinge and handle, with muslin on a frame of heavy wire or slats, looks the most prom-

ising. Single muslin makes a very poor shade, as any one may know who has walked under an umbrella on a hot day. Part of the rays of light and heat struggle through, and another part heat the fabric so hot that it directly sets up in the radiation business, sending heat downward profusely. By making the muslin into an endless band, like a roller-towel, and then springing it over a frame made of inch strips of wood, we would have a double shade inclosing an inch of air. The lower thickness of muslin would catch the radiation of the upper thickness and impart most of it to the inclosed air. Such a shade would be cool, very light, and not very costly. As good muslin can be bought for one cent per square foot, while boards can not be had for that money, the double muslin shade would not cost much more than a board shade of the same size.

Somebody will say, first perfect, practice, and prove these things, and then come and preach them to us. The writer pleads in reply that his bee experience is somewhat unusual, he having had charge of bees a considerable part of his life, yet never owning a bee, and that he is not in position to try extensive experiments. At the apiary here, asparagus was set last year for shade; and, as it was not expected to be very rank the first year, pole beans were planted in addition. The decision was that neither asparagus nor beans were a sufficient shade. Sunflowers are being tried this season. The sunflower makes a dense shade, and will throw its great leaves well over the hives, and yet it cannot tangle things up and become a nuisance like grape vines. Just imagine an apiary set 6 feet by 6 with rank Concord vines, and neglected a few weeks in the growing season! Why, the whole thing would be a jungle chin deep in vines; and the hives, invisible dens of yellow-jackets down in the unknown depths. The vines should not be neglected, certainly; and there are a few men so fortunately organized that all they attempt seems to be attended to in season; but the most of us would better not leave any needless gaps open, lest trouble ride in on neglect's back. Sickness, or unexpected press of work, may compel even the most careful persons to neglect many things, at times.

Let us relegate the grapes to the border of the apiary; have the high, tight, board fence around the whole, and trellises up the fence, on which the luscious grape can climb and flourish; but keep the center just as clean as possible. Referring to the plan given in the previous article, let the broad alleys be a clean sod, kept close with the lawn-mower, and the squares on which the groups of hives are to stand bare beds of beaten saw-dust. Perhaps two inches of gravel, with a half bushel of salt spread over it would make a neater bed, and would be sufficiently barren. This would not be in danger of taking fire from the smoker. Possibly, it might be worth the while to cover the squares with a thin pavement of some sort of concrete. Then, to crown all, let each hive, or group of hives, have its own reflector and shade, neat, light, reversible, removable, but not blow-awayable, and we would have an arrangement that even the bee-keepers of Utopia ought to be satisfied with.

E. E. HASTY.

Bodley, Ohio.

THE *Colorado Rural Life* has the following:

Lately, on a farm in Boonsville, O., a congress of bees assembled, thirty swarms having settled on one apple tree. The old ladies say it's a sign that the end of the world is near!

ALSIKE AND MELILOT.

WE quote the following from *The Prairie Farmer*:

1. What soil is best adapted to Alsike clover? 2. Why do you advise always to mix Alsike with other grasses? 3. Should melilot clover be sown by itself or with grain? 4. Would it do well in an orchard? 5. What soil is best for melilot? 6. Will stock of any kind eat it? 7. Is it an annual, biennial or perennial? 8. When once introduced can it be eradicated from the soil when desired?

Answer:—1. Moist clay soil. On such soil it will generally do well when grown alone, but it will do best on any soil in wet seasons. 2. Because it is then a sure and safe crop whether the season be wet or dry. The roots of Alsike grow near the surface, similar to white clover, and hence suffer for the want of moisture during drouth, but when mixed with other grasses the roots are then shaded and protected. The other grasses also help to keep it from lodging. The stems are smaller and less woody than the common red, and are therefore more liable to lodge. 3. Always sow melilot in the spring with some kind of grain, rye, wheat, barley, or oats, so as not to lose the use of the land the first year. Like red clover, it does not bloom till the second year. If sowed in the fall it may be grown by itself, but I should then prefer to sow it with rye or wheat. 4. It will do well in an orchard or elsewhere. 5. The very best is a rich moist soil. Have seen it often 8 feet high on such land, but it has such a large and long tap root that it seldom finds fault with any kind of soil wet or dry. 6. When young, and not more than a foot high, it is relished very well by sheep and cattle. They would keep it down in a pasture if given access to it before it gets too rank a growth. I have tried often to get it to grow on the commons, but the cattle running at large have kept it down and destroyed it. Some have cut it when young, dried it, and used it for stock, but I do not recommend it for stock, when grown for bees, for cutting or pasturing would ruin it for honey purposes. It is better to let it get a rank growth as it will then produce more flowers, and, of course, more honey. Some bee-keepers who have a large field of this clover prefer to cut half the crop about the middle of June, which, in the latitude of Chicago, would be about three weeks before it blossoms, and thus prolong the time of blooming. The part cut would come into bloom about the time the other would be through with its first crop of blossoms. 7. It is a biennial plant—that is, lives two years and then dies, root and branch. For this reason some prefer to seed the land twice so as to make the crop perpetual. That is, if land be seeded in the spring the same land is seeded again in the fall. That seeded in the spring blooms in July the next season, and that in the fall the following season. When thus seeded the crop becomes perpetual as the land seeds itself from year to year. 8. As this is a biennial clover, and hence dies root and branch the year 't blooms, it is of course readily destroyed by simply stopping the production of seed. Be sure to cut when in bloom and before the seed is formed. Some turn hogs into it at this time with unuzzled snouts, and they soon make a feast of the roots.

To conclude, I do not desire to sell any seed of this clover. What I have I prefer to give away to those who wish to try a small plat for honey purposes. I have plenty of fresh seed, of my own raising, for that purpose, so don't be afraid to send for

a package. Simply enclose a stamp or two to cover postage and trouble, and the seed will be sent you by first mail. It is now too late to sow Alsike this year, but it makes no difference when melilot is sown.

M. M. BALDRIDGE.

St. Charles, Ill.

Juvenile Department.

I AM another A B C scholar, and want to ask a question or two. I am a farmer's son, and have to work on the farm; now, can I do any thing with bees, and work. I want the A B C badly, but will wait awhile and make my bees pay for it. I had three colonies last fall, now have one. I want to transfer, before long, into a hive of my own make. It is made partly on the plan of the Langstroth and partly Simplicity. I am 17, quite a small fellow to ask so many questions.

Do you want Italians or black bees? You are not like the old lady that kept store. She said a pint was her pound.

THOS. H. TRICE.

New Providence, Tenn., May 8, '79.

Of course you can keep bees and work too, my young friend, and you will very soon find out, that to keep bees, you *must* work.

A pint of bees will hardly make a pound "the world around."

I have liked bees from my pop-gun-days. I have now 2 colonies of the common black bees for a start. I am a boy 16 years old, an orphan, and have not had a very good chance; therefore, you must overlook mistakes, for this is the third effort.

My bees have swarmed so much that I value them at \$30.00.

W. W. McCLARAN.

Marshall, Texas, April 1, '79.

Here comes that sixteen year old "bee-man" again, trying to be as jovial as ever. Father wrote you that "the boys" went after the absconding swarm of bees. Well, I suppose we did; after I had run one-half mile trying to keep up with them, and when they had settled had walked back home after my hive, then my brother went with me back to the bees again. I had never seen a swarm of bees lived in my life; so you see I was in a "box". The bees were in a brush heap, and I just set my hive over them, and commenced to rake them into it, all the time "peckin' away" on the hive. But, alas! before I got one-fifth of them in, they took wing and flew away. They never stopped this time until they came to neighbor H's, where they settled on a peach tree. I went to Mr. H., and told him I would give him 50 cts., if he would give them for me. He came and hived them without any trouble. I did not have the money with me, so I promised to pay him when I came after the bees. The next day, Mr. H. came over with the news (!) that the bees had swarmed again. I was not at home, so father told him he could have them. He hived them; but they came out again, and settled at the same place. They staid there until they died and dropped off. They did not make a single piece of comb. I want to know why they left. Their combs were bright and clean; there was unsealed larvae in the combs, and plenty of pollen too. The entrance was very large. But here's the funny part of it; I lost a half day's hard work (running after the bees), 25 cents (Mr. H. gave me back 25 cents), and the bees too were lost.

We have but two colonies now; one in a Langstroth hive, and the other in an "old gum". We have not had a swarm yet. While I think of it—the other day, one came out and settled on a tree. Father and mother got every thing ready (I was away from home), and just as they started to get the bees down, they "sailed back home". Now we would be glad if you would tell us why they did so strangely.

Fdn. is a "big" thing; we bought 3 lb. from you. We have but one hive to put it in, and you see we don't use much of it. I have seen no "bulging" yet. The frame you sent is just "bully". I have not seen her "royal highness" yet. Is there any probability of your sending queens by mail this season? Well, I expect you are getting tired of me; you see I am almost as talkative as you are.

Snyder, Ark., May 16, '79.

D. S. BETHUNE.

Heads of Grain,

From Different Fields.

GETTING QUEENS PROMPTLY.

PLEASE accept thanks for your promptness. I received your postal on the 5th, just 70½ hours from the time that I put the order in the office (how is that for promptness?). My hive had a division board in it; I set it back far enough to receive the cage containing the queen, then set an oyster can in the bottom, and the cage on that, and left it there 24 hours, when I let her out. She went down all right; every bee that met her, would make her stop and give the "pass word." Your box came through all right; it is very nice and light; it could not be any better. There was not a dead bee in it. They uncapped about ¼ of the honey. It was shipped on the 4th, and bees taken out on the 7th, in the morning; so you can tell about how much honey they will eat in a given number of days. The bees were all very smart and lively; could not be any better.

J. L. JORDAN.

Adrian, Mich., June 6, '79.

FRIEND HOUGH CONTRIBUTES TO THE COLD BLAST SMOKER.

I like the smoker, and thought I must add something to it; so I tacked a piece of sand paper on top of the bellows to scratch matches on.

Rootstown, O., June 3, '79.

S. H. HOUGH.

Many thanks, friend H. It was but yesterday, in scratching a match on the smoker, I tried to find a rough place on it, but it never dawned on my understanding how handy the sandpaper would be, until you spoke of it. We have placed a dollar to your credit for the idea, and now our smokers all have a piece of sandpaper glued on the bellows board, just before the draft hole.

OBJECT LESSONS IN BEE CULTURE.

I received the 5 lbs. of comb fdn. you sent me, put it into racks, and transferred the bees from the old fashioned boxes into the rack hives. You cannot imagine my great surprise at the great change it has already produced, or the surprise of grandmother, who has tended bees for at least 50 years in the old mode of working with them. But I am rather ahead of her now and have already given her two good object lessons on bee culture. And all I know about bees is what I have read from your journal during the past few months.

S. H. FRANKFORD.

North Lima, Ohio, June 12, 1879.

I wonder if our friend is not superintendent of a Sunday School as well as a bee keeper.

SCOTLAND.

Everything has arrived safely. The A B C gives special satisfaction. I have got the sunflower seeds planted in pots and expect to force them into bloom this season. The season here is later this year than usual. As yet, I have not heard of any natural swarms. Fruit blossom, with the exception of the cherry, is scarcely out. Still we live in hope. July is the great harvest month for bees.

GEO. LESLIE.

Luthrie, Cupar-Fife, Scotland, June 2, '79.

SHADE IN THE SOUTHERN STATES.

H. A. Moody, p. 225, says, "In southern latitudes the sun rises in N. E. and sets in N. W." If he will consider a moment, he will see that it shines more on the north side of a house or hive in N. Y. than it does in Miss., and that the days are longer here. Farther north, nearer the pole, the sun would go round the hive something as I suppose you walk round the stairs.

May I suggest to your proof reader to mark out "onto" whenever he finds it and use the English word upon?

J. E. DEAN.

Fishkill, N. Y., June 12, '79.

FEEDING BROKEN COMB HONEY.

I have on hand some sugar syrup, and can buy some good comb honey in poor shape for market at six cents per pound. Will it help the bees any in increasing stock and comb building, by feeding it to them nights and lowery days? and will it pay? How would you feed broken comb honey if you had no extractor? inside the hive or out? Will the bees uncup it, or shall I? Would it do harm to feed honey in front of the hive at night? W. A. SNIFFIN.

Spencer, N. Y., June 12, 1879.

I do not think it will pay to feed bees at all, while they are storing honey. Feed broken comb honey, either inside or outside the hive, as you choose; if you feed outside, in the day time, of course you will have other bees getting it, and will be in danger of exciting robbing. Broken comb honey can be fed at the entrance, in the night, nicely, if you do not give them more than they will surely clean up before morning. you can tell, by practice, just how much will answer. No feeder is needed.

SEVERAL EGGS IN A CELL, AND SELLING HONEY.

I have an Italian queen which lays from one to twelve eggs to the cell. Now, is it any use to keep a colony of bees to wait on such an "old granny" as that? or is that nothing strange, friend Root?

I have 80 colonies under my care. As I am but 19 years old, I am quite young to handle so many bees. It is not the production of honey here, but the sale, that makes me look downcast. What shall I do, friend Root?

C. H. CLARK.

Albia, Iowa, June 12, 1879.

Several eggs in a cell may result from two causes. The most general one is, that the cluster of bees is too small for the queen, and so she goes her rounds over and over again. In this case, you will find eggs in all the cells which the bees have prepared for her. If on the other hand, you find eggs in but few of the otherwise empty cells, and those all "in a heap," the fault is pretty evidently the queen's; and the eggs, if they hatch at all, will probably produce drones, showing that the queen, from old age or some other cause, has become virtually a fertile worker. The remedy is, of course, a new queen.

I know of no better way to sell your honey, my friend, than to develop your home market. Put up a shingle, "Honey for sale," and then make such a nice show of honey to every customer who calls, that it will "astonish the natives" round about. In the same manner, introduce your honey into the groceries, and if you can keep up the standard, and keep every thing neat and tidy the year around, there will be no trouble about selling your honey.

MISHAPS IN INTRODUCING, ETC.

The queen was received alive and all right. I had the misfortune to kill her but the bees did not do it. I released her yesterday morning, but just as soon as she got out of the box she flew away and was gone about ten minutes. When she came back, I placed her on top of the frames, but I soon saw the bees were going to kill her, so I put her back into the box. In the meantime some of the other bees had got into the box, and it was as bad for her there as it was in the hive. I took her into the house and got the bees away from her, clipped one of her wings, and placed her in a cage by herself, and put her back in the hive. I released her this morning. The bees received her very well, at first; but I looked at the hive in about twenty minutes, and found the bees had balled her. I got her out and put her back in the cage, but when I went to shut the cage, I caught her head against the side of the

cage and killed her. I don't know when I ever was so sorry as I was then; but we all will lose some-times. I had a fine swarm of Italians to-day.

Washington, Ky., June 9, '79. J. R. ANDERSON.

You will probably never kill another queen in that way, friend A. When the cage is being closed, queens are very apt to put their heads out just in time to be caught, and to avoid such mishaps, I always place my finger on the opening, while I push in the slide. I once killed *one* queen in that way.

BEEES IN MISSOURI; A SURPLUS OF POLLEN.

My bees, nearly 100 colonies, wintered finely. In South-west Mo., we have no need of chaff hives and all such fixings. Bees here winter well on summer stands, if prepared in the fall with plenty of bees, plenty of honey, and winter passages through the combs. We have one great drawback here; our bees gather so much pollen that we have to cut out some of the comb. There is no need of feeding rye meal here.

E. LISTON.

Virgil City, Mo., June 12, 1879.

Glad to know it, friend L., but, if I am not mistaken, the good people of Mo. have had terrible times with spring dwindling, in some localities. I think I should make the bees rear brood, and use up that pollen, instead of cutting it out. I have never seen a surplus of pollen here.

Will you please suggest something which is so distasteful to bees as to drive them off? We are very much annoyed by these useful insects about our soda fountain. To kill them would be useless, as they keep coming by thousands. Could you recommend any kind of perfume which would be unpleasant to them?

AUG. J. BOGEL.

Shreveport, La., June 9, 1879.

Such troubles occur only when the yield of honey has ceased, and it is rather a difficult matter to suggest a remedy, unless the syrup can be kept cleaned up so that not a bee ever gets home with a load. If the first bee that commences to load up is killed, and the next, and so on, being sure that not one ever gets home, they will very soon stop coming of themselves. Last fall, I gave the candy makers at our fair a shingle, and begged them to be sure to kill the first bee that came near. The consequence was that no bees were seen near the candy stand, because none ever got home with a load.

Coal oil is offensive to bees, but it would also be offensive to customers. I do not know of any perfume offensive to bees, and not to people.

Nucleus received. It is splendid; better than I expected. Thanks. Bees are all hard at work, and we shall see which kind will win. A man has nothing to fear, who does business on Christian principles. Your ideas of business, friend Root, are but a nucleus as yet, but are sure to grow. These little business postals should carry good will, and a word for Jesus every time.

J. MATTISON.

Ocean View, N. J., June 9, 1879.

Many thanks, friend M. I am sure you give me more credit than I deserve, for, although I get glimpses of that better way now and then, it only shows me how sadly I do err, as it seem to me, a greater part of the time. May God continue to lead us all, in that better way.

CALIFORNIA.

We have a small crop of honey this year; our early plants failed to yield any. Mustard was our best honey plant this season, but that is gone now. The white sage is a rare plant in this part. The button sage is common at the foot of the hills, but is widely

scattered and blossoms out slowly, though it yields good honey. The tar weed is just in bloom. Last year, it yielded a large quantity of honey of a flavor similar to that of its namesake; hence our honey from this source is not fit for market. I suspect some dishonest men shipped tar weed honey last year, and spoiled the sale of some good honey.

I am a beginner; I commenced with 4 colonies last year, and have increased them to 42 colonies. Hard times are upon the Pacific coast in spite of our gold mines, and other great resources.

ROBT. BEETON.

Santa Barbara, Cal., June 2, 1879.

THE NEW SECTION BOX QUEEN CAGE.

Now I thought those section queen cages would please every body, surely; but just see what this friend says.

That section box contained some bees and a little thing, smaller than the bees, which I took to be the queen, and I let that out trying to get it out. If I ever send for another queen (and I don't expect to, if it keeps as dry as it is now), please send it in a dry goods box, if you haven't any queen cages. I should think you would lose $\frac{1}{2}$ of them, trying to get them out. I would, anyhow.

R. P. WALDRON.

Havana, Ill., June 9, 1879.

Why, I never thought, friend W., of having any trouble in getting the queen out. Remove the wire cloth from one side, lay the cage on the top of the frames, and drive bees and queen both out with a little smoke.

A QUEEN THAT STOPS LAYING AND COMMENCES AGAIN.

The queen I was inquiring about, that had not laid an egg for about a month, has commenced laying again in good earnest, filling comb very fast. She was a "dollar" queen and some were looking on to see how it would come out.

WM. BLAKE.

Buchanan, Mich., June 10, 1879.

If the queen refused to lay in May and June, with a good colony of bees, the case is indeed a singular one. Queens, after a long journey, often refuse to lay for several days, and it is much on this account that I have decided on a larger cage. You can see how I have succeeded, by reports in this No.

FROM A VERY NEW A B C SCHOLAR.

Well, here I am again to report. You may not want to hear from me, but here goes. We trusted to you entirely, but just see what a trick you "put up" for us. The colony appeared strong, very; threatening to swarm; so, fearing we would lose them if let alone, wife and boy of 13—my bee-boy—divided them, May 28th, taking 4 frames with brood and eggs of various ages for the new hive, but *missed the queen*; left this where the colony had been standing, and removed the old colony to a new location, 20 feet or less away. The young colony went to work at once, and have been *very busy* every fine day since. This colony must have about $\frac{2}{3}$ of the original colony, and, we thought, the queen. The old colony kept quiet, coming out very little. We thought they were rearing a queen. June 4th, Dr. Durstine looked them over. Old colony were busy rearing brood, and were eating the honey in their hive, gathering little if any outside. The young colony have worked like heroes; made considerable new comb, and some honey. He found in one frame 1 queen cell, well developed; in 2d frame, 10 queen cells; in 3d frame, 3 queen cells—14 in all. Some were almost ready to leave the cell; all were looking well, and will be out in a few days. How is this? Did you *intend to treat me so*? Be(care)ful, or I may expose you. Is this a rare freak? Who wants a queen?

JESSIE MILLER.

Alliance, Ohio, June 5, 1879.

This is not a very rare freak for Italians, friend M. I am very glad you and my old friend, Dr. D., are succeeding so well.

I think your wax extractor has paid for itself this season.

J. S. BARB.

Bristol, Ohio, June 7, 1879.

NATURAL COMBS BREAKING DOWN.

The comb, with plenty of honey in it, in one of mother's hives—an old fashioned box hive—broke loose at the top and fell down. What is the cause, and what is the remedy? Should she transfer the bees to another hive, or let them patch up to suit themselves? The art of transferring she has yet to learn.

D. B. HOWE.

Clarence, N. Y., May 10, '79.

Natural comb will sometimes break down, though not often. If in summer, the hive is not shaded enough. The best remedy is to transfer them. See TRANSFERRING.

Customers to our flouring mill seem to prefer to read GLEANINGS to any thing else while they wait on their "grist." Could not you give us some hints for each month, on the front cover, instead of those stereotyped opinions, etc.?

G. W. GAMBLE.

Fredericksburg, O., June 5, '79.

I am very sorry to keep giving those stereotyped opinions, friend G., but if I do not, I shall have to keep the clerks writing the same thing over and over. Even now, we have to keep constantly asking people to read the front cover. I am very glad to hear your customers are pleased with our efforts.

HOUSE APIARIES. INTRODUCING QUEENS.

I have built a house apiary, 12x24, to hold 52 colonies. The entrances are so arranged that they are from 3½ to 4 feet apart. Hives stand on shelves, so that they can be moved. The entire cost of the house exclusive of labor, \$30.00. It is lighted by sky-lights.

I want to furnish you 200 queens next April and May. I am fixing to be "head quarters" for early queens, next spring.

R. H. MCINTYRE.

P. S.—Can you inform me where I can get *horist* or puff-ball, such as is used to introduce queens? I have lost more queens in introducing this spring than ever before altogether. Is there any sign that we shall ever be allowed to send queens by mail again?

Daytona, Fla., June 1, '79.

R. H. M.

Go ahead with your queens, friend M.; I only wish you had the 200 ready to send me to-day; your money would be quickly handed over. You can introduce queens by stupefying the bees with our common puff-ball, but the plan is a troublesome one, and not sure. I think it doubtful about queens being very soon allowed to go by mail. Hayhurst's process does away with all the trouble of introducing queens, and is, I think, the surest remedy we have, for losses in that direction.

BLACK HATS; HAVE BEES AN AVERSION TO THEM?

GLEANINGS for June was received to-day, and, as usual, has been read with interest. Among other things, I have particularly noticed the remarks of friend Buchanan on page 232, in regard to "black hats among bees," and believing that the foundation of his theory has an existence only in his imagination, I desire to put my own experience on this subject upon record, so as to let in all the light that the truth may be ascertained.

It is now 12 years since I first learned that an old black hat could be used as a decoy, to induce bees to cluster while swarming, and since that time I, and others in this community, have often used one, and seldom without success. When the bees swarm out, place the old hat on a brown stick and hold it in the midst of them, and in a few minutes, they will be clustered upon it as nicely as you could wish. I have seen my son take a swarm from a tree, 12 feet from the ground, by placing his hat on a pole and, with it, brushing the bees from the limb; as they rose, they would cluster on the hat.

My experiments in this way have all been made with black bees, as, since I have had Italians, I have never allowed them to swarm naturally. I think, however, there would be no difficulty in managing them in the same way, with an old hat colored as nearly as possible like themselves while in cluster,

my theory being that it is a deception; the bees light upon it supposing it to be the cluster, and before the mistake is generally known, it does, in fact, become so.

J. B. MITCHELL.

P. S.—As for bees disliking a black hat, I will simply say that I invariably wear a black felt hat among mine, and I am seldom stung except through carelessness.

J. B. M.

Hawkinsville, Ga., June 3, 1879.

"DOLLAR QUEENS" AND THOSE FROM "HIGH PRICED" DEALERS.

I think a person ought to be as willing to acknowledge good treatment and fair dealing as he would be to complain at ill usage. Therefore, as I have been well used in my dealings with you, I write to let you know that I appreciate it; and as I have not been fairly treated by some other dealers in bee supplies I am the more willing to own the fair manner in which you have dealt with me.

Last season, I had 6, "dollar" queens of you, and this spring they are all right, very prolific, and in every case have proved purely mated. I can handle them in any way almost, without the use of smoke. Far different has my experience been with some I had from another dealer, who wrote me that he could not afford to raise queens for one dollar; that he would not have such queens; and advised me not to try them, but to get queens of some one that took the trouble to raise *good* queens, as they were the foundation of success. I had four queens of him, for which I paid him \$2.00 each. They were what he called warranted queens. One has proved to be a hybrid, and of the other three two are pure, but lay one or two eggs a day; they are either very old or not at all prolific. One queen out of the four is fair. But I would not exchange any one of the dollar queens I had of you for ½ dozen like the best I had of him. He don't get any more of my dollars.

Bethel, Conn., May 31, 1879.

S. H. HICKOK.

UNCERTAINTY OF BUCKWHEAT.

This is not much of a bee country. White clover is our main dependence, and that is often cut short by dry weather, as it is this year. Some buckwheat is raised here, but no buckwheat honey has been made for 3 years. Last fall, you could hardly find a bee in a whole field of buckwheat. My bees were consuming stores when there were several acres in bloom within ½ mile. Bees have died here as well as in other places. Some of my neighbors think they will have to go in "Blasted Hopes."

PERCIVAL NICHOLS.

Bridgeton, N. J., June 3, 1879.

I know buckwheat is uncertain, but, notwithstanding, I have thought best to make a standing offer to our farmers, of \$1.00 per acre, for all they will sow within 1½ miles of my apiary. The A. B. J. once stated it \$100. per acre, and then fixed it to \$1.00 per hive. Try again, friend Newman; I haven't got near as much money as that, even if I had the faith in the buckwheat.

FROM DARKNESS TO SUNSHINE.

Your beautiful queen came safely; but, *sad!* has been lost in introducing. I think, if I had smeared her with honey, the bees would have received her. I liberated her, and thought all was right, but went to look again next day, and could not find her; but found two queen cells well under way, and feel sure she is lost, for which I am very sorry. I shall be in grief till I hear from you. I would like to know how many *capped* queen cells you could send to me for one dollar, and I will remit you as soon as I know that they can be sent safely.

Providence, R. I., June 3, 1879.

June 7.—I am happy to inform you, that, in looking over the hive in which I put the queen, I now find that the queen cells are missing, and there is plenty of eggs; so I think the queen can not be lost. I think all is right.

R. CORSCADEN.

I received the queen May 30th, in good shape, and placed her on top of frames, in cage immediately. Left her there 12 hours, let her out, and she commenced laying at once. I have looked at her from day to day, and to-day find them capping over her brood by the thousand. I am well pleased with her so far, and expect to want others this summer.

Kinsman, O., June 10, '79.

A. W. GILLIS.

MOVING THE OLD HIVE WHEN A SWARM HAS ISSUED.

In March No. of GLEANINGS, you say in reference to hiving swarms when the queen's wing is clipped, "As soon as the bees are all out move the hive to a new stand, put a new hive in its place, &c." Now, this moving the *old* hive to a *new* stand, I believe to be a mistake. I tried it several times, and found that it would, in consequence, be robbed of nearly all its old bees. The bees that happened to be in the field at the time of swarming, together with nearly all that came out next day, would return to the old stand and unite with the swarm, thus giving the swarm more than its share. I now move the old hive a few feet away, cover the entrance with a cloth until the swarm is hived, and then move the *new* hive with the *swarm* to a new stand, and all goes lovely, because nature has not been violated in the *division* of the bees. Excuse my "bothering" you thus, as I deem it an important matter.

G. B. REPLOGLIE.

Unionsville, Iowa, June 2, 1879.

To be sure, it robs a hive of nearly all of its bees, but are you sure, friend R., that that does any harm in swarming time? It weakens the old hive so much that it is pretty sure to prevent after swarming, and that is the very thing we often want to do. There are always, so far as my experience goes, enough bees left to care for the brood, and we therefore suffer no loss, for few bees are needed until their young queen begins to lay. Your plan has often been used, and it keeps the old and new more nearly of a uniform strength. I always like such criticisms as yours; do not be at all backward in speaking right out.

THE NEW MATS FOR COVERING THE FRAMES.

I received my other orders all right; but, Sir, I do not like your mats. They work magnificently on new frames, but, upon old frames that are covered with propolis, they stick and jar, and also move the frames, if they have metal corners, in a way that is not pleasant to the manipulator or bees. Paint them, friend Root, and try that.

R. H. THOMPSON.

Pittsburg, Ind., June 16, 1879.

I know there are objectionable features to the mats, friend T., as well as to the enameled cloths; but, in turning them back, if you fold them over sharply, they will move the frames but little. I have thought of painting, but there are objections. It will make the mat heavy, will add to the expense, and will prevent its absorbing moisture like the chaff above them.

HONEY BEES AS BIG AS BUMBLE BEES.

I think there are a good many people who have fallen victims to the idea that small cells hatch small bees and large cells large bees. I don't think the cells have anything to do with the size of the bees at all; for I can see that my bees still grow after they come out of the cells; they get larger any how. If this theory is correct, why is it that the human race or any other race don't grow larger? They certainly have plenty of room. Go ahead, friend Archer, and try the experiment, and report progress to GLEANINGS.

SMOKERS AND FUEL FOR SAME.

The smoker you sent me, about April 25th, came to hand in good order, and I think I made a good choice in taking Clark's. The bellows is put just right to be handy. I can burn anything that will burn at all, and make all the smoke I want. Dry rotten elm, rotten ash, corn cobs, rags, paper, patent hives, or sawdust. Ash and elm are the best; rags next; paper and patent hives next; sawdust shakes about in the fuel case and lies too close for air to circulate through it, therefore I pronounce it a failure.

When I read Bingham's letter in the June No., I was greatly impressed with the words in the 133d Psalm. "Behold how good and how pleasant it is for brethren to dwell together in unity!" etc.

Brother bee-keepers, read that Psalm, and let us rejoice that we have a father in Heaven, who watches us when we do evil, as well as when we do good; and let us live here in this world so that we may be a benefit to every one with whom we may come in contact. "Bless and curse not," should be the motto of every bee-keeper in the world.

T. J. COOK.

Newpoint, Ind., June 10, 1879.

HOW THE QUEEN VOIDS HER FECES.

Bees came out very weak this spring. Several bee keepers lost all their stocks; others about half. I have not heard of any who did not lose nearly half of their queens, and have not heard of any whose bees were made more than half as strong as usual at apple blossom season.

I have read the journals considerably, but do not remember noticing anything in regard to the *feces* of the queen. What becomes of them? As she must consume so much food, it has often been a query with me, and I should very much like to hear something about it.

E. L. DRAKE.

Dimondale, Mich., June 17, 1879.

I, too, have wondered in regard to the matter you mention, friend D., and all I have ever been able to see that she voided, was a substance resembling clear water, which was thrown quite a distance from her body, and fell on the bees and combs, in a sort of spray. I am inclined to think that even the worker bees do much in the same way, while on the wing.

WIRING FRAMES FOR FDN., ETC.

I find that three wires sewed in the L. frames effectually prevent the sagging of the fdn., and make a good, strong comb, with much less trouble and time than when the wires are but one or two inches apart. To imbed the wires in the fdn., I have used, with success, a wheel made from a nickle cent with a grooved edge. It will pay all those using wood frames to both bevel and *point* the ends of the top bars; they manipulate much more easily. When two rabbits are used, a strap of tin may be tacked to the projecting ends, which will give all metal bearings *almost* as good as metal cornered frames. The best way to secure "solid slabs of honey" for wintering is, to fill the top stories of some of your strongest colonies with brood frames filled with wired fdn. By next November, open your hives and look out for "slabs."

JOHN D. WHITE.

Chicopee, Mass., June 21, 1879.

While three wires may answer generally, they do not make a sure thing of it every time, and they are not as secure, should we wish to use the frames for transportation. The piece of tin put around the end bar prevents the frame from being waxed fast, but cuts bees in two badly. It is also more expensive, if you put them on accurately, than the metal corners are, I think you will find.

FDN. WITH SQUARE CELLS.

I have been unable to follow up my experiments with square cells, on account of my left arm's being rendered useless by rheumatism. I could not even open my hives myself, and had to oversee and watch a set of green hands who were making hives; but it is getting better and I hope to be able to resume experiments. I am certain, however, that bees will work dipped sheets quicker than pressed ones, because they are softer and more porous, and thus easier to work. By putting a microscope on a dipped and also on a pressed sheet, you will see the reason. I hope others have tried square cells and will report this month.

JOHN F. LAFFERTY.

Martinsville, Ill., June 16, 1879.

We have just gone through a three weeks honey harvest from basswood and wild china, with fine weather, and honey of the finest quality. I got 195 lbs. from one swarm, gathered in 18 days; one days gathering was 19 lb.

J. W. ECKMAN.

Richmond, Texas, June 5, 1879.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POST-PAID.

MEDINA, JULY 1, 1879.

Not by might, nor by power, but by my spirit, saith the Lord of hosts.—Zech. iv. 6.

THE National Convention for 1879 will be held in Chicago, commencing October 21st.

NO more bees wanted, at present, as we have now over 200 colonies.

"DOLLAR" queens are now just a dollar, and I will send you just as many young Italians with them as you wish, for 10 cts. an ounce, extra.

WE regret to say that our friend, Mr. Langstroth, is again prostrated by his old malady, and is unable to write any thing, as we learn through his daughter, Mrs. Cowan.

WE have had two importations of queens from Italy, but they are all gone, and orders are still ahead. More are expected daily. We have ordered, this season, 150 in all.

I EXPECT it was the section-box queen-cage that made such a run on queens this month. We have been awfully behind; but our three hexagonal apiaries are now yielding such a crop that we shall fill all orders to-day, if our boys can get them all out and cage them.

I HAVE always paid taxes on my bees, and always want to. I do not want to see my fellow men taxed, without being taxed myself. It is said, that Greece pays an annual tax on bees, equal to \$9,000. It seems to me the Greeks should have a bee-journal or—not be taxed so heavily.

NICE books, for a little money, that tell about "things" are what I do especially love; and "Wood's Common Objects of the Microscope," with its pages of beautiful plates, I think, is ahead of anything I ever saw before in my life. Why, the colored pictures on the cover alone, are almost enough to set a boy crazy, who has any fondness for microscopic work. Mailed anywhere, for only 50c., or sent free with our compound achromatic microscope, for only \$3.00.

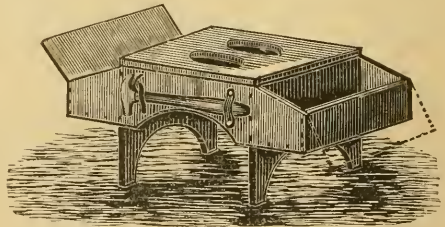
SOME of our friends are succeeding in sending queens by mail, in sealed packages; but, after the very positive orders from the Dept. last summer, I do not feel like doing it, even could we succeed in getting them through strong and vigorous. Is it not much better to have them with bees enough for them to keep on laying, during the trip, as they do in the section-box cages? If it is an imported queen, you have a nice lot of eggs with which to start queen cells, as soon as you get her.

THE honey farm is doing finely. The seven top turnip is the only plant that has yielded its crop and

passed away. It comes in just between apple blossoms and clover. We can send you nice, fresh seed, for 10 cts. per oz. Now is the time to sow it. The boys are to-day, June 26, cultivating the acre of sunflowers. An acre of mellilot is doing finely, also an acre of mignonnette, a half acre of borage, and an acre of mustard, besides small fields of catnip, motherwort, etc. Several acres of silver hull buckwheat are just being sown, and the Simpson honey plant is getting almost as high as one's head. The flower garden adjoining the factory is full of honey plants having great long crooked names, but bearing but little honey and few blossoms, just yet.

"WORK BOX" FOR THE APIARIST.

A FEW days ago, Will had a queer looking machine in his hand that puzzled me awhile, especially those odd looking holes in the top of it. I waited a little, and found that it was a seat to be used while working in the apiary, and that those queer holes were to allow of the implement's being quickly picked up with one hand. The implement was devised by his brother, our engraver, who has given you all a cut of it below.



WORK BOX AND SEAT COMBINED.

Those of you who raise queens know how troublesome it is to stoop over hives all day, and how it rests one, to sit down occasionally. When seated, you have at each side, boxes to hold your things, which may, or may not, have covers, as you choose. A drawer may also be put in the back side. When putting up queens, your tinned tacks are in the proper box, and your hammer is right in its place. The seat is a nice, solid place on which to lay the cage, while driving in the tacks.

This summer, we have used the transposition process, almost exclusively; and each workman has a piece of comb containing larvæ of the right size, just hatched from the egg, and covered with the milky food, in one of his boxes. Well, we let every colony build just as many queen cells as they choose, from their brood, and then poke out their embryo queen, and put one of these in its place. I need hardly say that this bit of comb containing larvæ is from our best imported queen. As the cell always contains an abundance of food when their own larva is removed and a younger given them in place of it, our grafted cells contain more than the natural supply of food.

We can furnish the work box and seat combined, for 50c; if lids are added to the boxes, and a drawer put in the back, the price will be 75c; and if the whole be neatly painted, \$1.00.

Notes and Queries.

THE 5 queens you sent me last fall were received in due time, all alive. I introduced them immediately, and, although I did not follow your directions in every particular, I made a success of it. When I released them, I watched their motions until it was evident that they were kindly received.

MOTHS.

In regard to the bee moth, you tell us each month, "The bee moth need hardly be mentioned now, unless it is to advise you to drive them out with Italians, for, whenever they come into a neighborhood, the moths get out without any farther trouble or bother." Now, isn't that putting it rather strongly? Is it true, that the moths will flee before the Italians like a routed army? I have never found any moths upon the comb, but have found them upon the bottom boards, and upon the under side of the frames, and, I believe, in one or two instances, upon the top.

Parsons, Kan., May 23, 1879.

H. M. TAYLOR.

[I do mean just what I say about moths, for even if you do find a worm or two on the bottom board, or on the tops of the frames, the Italians will take care that they do not get into the combs where they can do harm, as they do with the black bees.]

ANOTHER CLAIMANT TO THE INVENTION OF THE COLD BLAST SMOKER.

Last year I wrote you a letter describing a modification of your Simplicity smoker, that would give you a cold blast and a better draught; but you wrote me that you tried it, and it would not work. Now, judge my surprise to see that your "cold blast" smoker is identically the same thing in principle. The only difference I see, is that you lengthened the nozzle a little, which, of course, ought to be suggested on the first trial. I wondered why it did not work with you, for I knew the principle was correct, it being that of the "injector" used on engines. Now, sir, I think it but fair that I should have due credit for my invention. What say you?

S. C. DODGE.

Chattanooga, Tenn., May 19, 1879.

[I have been waiting to hear from you, friend D. I knew somebody sent me such a letter, and, in the March No., I had in type a paragraph inquiring who it was. The paragraph was taken out to make room for something else, and was afterward distributed and forgotten. You are right; the tube only (and the draft holes) was lacking to make it a success, but I had not the sense to add it, as you did not suggest it, and so, like many other inventions, it was dropped. If I am correct, the credit of an invention belongs to him who first makes it *practically* a success. This, neither you nor I can claim. I studied on the same thing also, last winter, but could not make it work until friend Corey sent us a complete smoker. I cannot find the first letter, but I think there was no mention of "cold blast."]

SAGGING OF FRAMES, ENAMELED CLOTH VERSUS MATS, ETC.

My brood frames are filled with brood and sealed honey, until the bottoms of the frames rest on the bottom board. The tops of frames are warped or bent on account of great weight. What shall I do? The story and a half hive of yours and "fdn." are the greatest improvements I have yet seen in my experience. The enameled cloth beats slats for frame covers; don't you think so?

R. C. TAYLOR.

Wilmington, N. C., June 7, 1879.

[You will find a complete remedy for the sagging of top bars on another page. I rather prefer the mats, but it may take some time to decide fully in the matter.]

HONEY FLYING OVER THE TOP OF THE EXTRACTOR.

I received smoker top and extractor rim, and am well satisfied. They work all right. I can hardly make the smoker go out at all now, unless I put a plug in the top. I thank you very much.

LEVI WHITMOYER.

Noblesville, Hamilton Co., Ind., June 20, '79.

[Once in a great while, we have a complaint that the honey flies over the top of the extractor. I do not know how this can happen, if the dimensions of the frame to be used are given us accurately; but

where one has such troubles the easiest way to fix it is to have a rim, say 3 inches wide, with a wire in the top edge, made to slip just inside of the top of the can. Loosen the screws to the gearing, and it can be put in place very easily. We will furnish such a rim without charge, where it is needed on our extractors.]

POLLEN IN THE SECTIONS, STARTERS FALLING DOWN, FASTENING ON SEPARATORS.

Some of our colonies are filling the boxes in the honey crates with pollen. Can they be induced in any way to use it out? Did you abandon the melted wax plan of putting in starters because it was insecure? The bees seem to dislike building over the line of rosin and wax, and begin to build out the fdn. just below, and as soon as honey is deposited in it, it tears off. Every evening I have to take out what have fallen during the day, and try again. I think you said you did not know whether a queen would feed herself or not. To-day one hatched out in my hand, and ate some honey I offered her. The "blessed bees" (?) also fasten the sections to the top occasionally.

M. SIMONS.

Brocton, N. Y., June 23, 1879.

[I have never seen many of our sized sections containing pollen, but if I should find such, I think I would save them to send queens in. I have never heard of starters falling off from the reason you mention. We use the wax and rosin, but a very small quantity is used in fastening the starters. To be sure, queens feed themselves; at least, ours do. Once in a great while, we find the comb of a section attached to the separator, but we always take such directly to the dining table, and have no further trouble with them.]

FEEDING AND BUILDING UP COLONIES THAT ARE TO BE BRIMSTONED.

People about here have the fashion of killing their bees, in order to get the honey. Will it pay me to take such bees, giving the owners *all the honey?* and can I fill them up well for the winter, by giving feed and fdn.? If so, would it be best to unite? and can I unite safely, during transferring, at that season (October)?

ANNA L. GRAY.

Bloomfield, Conn., June 18, 1879.

[Feed and fdn., with *plenty of bees*, might answer, if you commenced your work in Sept.; but I have little hope that you would make a success of it, so late as Oct. There are those among us who, I think, would be so thorough and careful, as to make it work even in Oct.; but the average ABC scholar would be almost sure to end in Blasted Hopes.]

BEEES DESERTING THEIR HIVE WHEN DEPRIVED OF BOTH BROOD AND QUEEN.

What became of our bees? I took the queen from a hybrid colony, and also the brood, leaving only the combs with honey, intending to put in pure brood to raise cells; but when I got so far, I became very tired, and thought that a few hours waiting would do no harm. In the evening, when I took the brood to them, $\frac{2}{3}$ of the bees had left. Is it usual for bees thus to leave when both queen and brood are taken away? and where did they go? I could see no dead bees in front of any hive, that I thought came from that hive.

WOODEN SLATES.

Thin, clean boards, such as are used for section boxes, answer for us instead of slates. Thread a darning needle and sew loops to hang them up by, drive in a carpet tack to hang them on, and write with a pencil.

MRS. S. J. W. AXTELL.

Roseville, Ill., June 15, 1879.

[I should not dare leave bees a great while without brood or queen; I think your hybrids must have gone into adjoining hives where they were well received. I suppose your wooden slates, after they are all written over, are thrown away, are they not? and new ones hung on the tack.]

FOUNTAIN PUMPS AND HOW THEY ANSWER.

I used my fountain pump in about two hours after it came, on a swarm of bees which seemed determined to go to the woods; but, when I brought it to bear on them, it was astonishing to see how soon they changed their mind. It is the nicest thing I ever saw for calling down the little pets; I could not get along without it.

H. L. RICHMOND.

St. Johns, Mich., June 16, 1879.

SMOKERS.

Smokers to hand, all right, and in splendid condition. Have just tried one; it beats anything in the smoker line I ever had. A. T. DOYLE.

Darksboro, Mo., June 7, 1879.

I received your smoker all right. What a beauty it is! I don't know as I can ever bring myself to use it for fear of soiling it. JENNIE HOWARD.

Lawsville Centre, Tenn., June 7, 1879.

My smoker came to hand all right, and works to a charm. I use rotten wood and have to keep the damper one half closed or the wood will blaze. Tell your friends who can't make them burn to get good fuel, and they will get all the smoke they want if they do not blow too hard. J. J. C. BROWN.

North Sandwich, N. H., June 6, 1879.

Many thanks for the prompt sending of the cone for smoker. Can now almost see the smoke before the match is touched, and afterwards it goes like a house on fire. MRS. C. FAVILLE.

So. Wales, N. Y., June 9, '79.

Please send me one of your new cold blast smokers. I borrowed one the other day, and, although I had to use coals not over dry, the smoker worked splendidly. L. N. HOLMES.

Putnam, Ct., June 11, 1879.

Sections are nice; the crate is a beauty. I am well pleased. If you serve all customers in the same way, and furnish as good goods to all, they certainly ought all to be satisfied. That cold blast smoker I got of you, for a neighbor of mine, is just the thing. I tell you it makes the bees "secoot." O. L. ROSEMAN.

Montezuma, Iowa, June 2, 1879.

My smokers are already gone, and I have none for myself. Please send me, for the six dollars enclosed, one dozen cold blast Simplicity smokers, as soon as you can, and oblige.—G. L. HOLLENBACK.

Noblesville, Ind., June 17, 1879.

SWARMS ALIGHTING ON THE SAME SPOT.

A plausible theory would be, that there was some natural advantage in the location, which each successive swarm appreciated, scent having little or nothing to do with the matter. C. A. LOVELL.

Hartford, Ct., June 13, '79.

[This would hardly answer, friend L. In our old apiary, there were perhaps 20 trees, each one about as eligible as another so far as one could see. One season, the first swarm would choose a certain spot on a certain limb of a certain tree, and all the rest would choose that same spot. The next season, another limb on another tree would be chosen, and they would then all choose that one. Several times, it seemed that the spot chosen was a most unfortunate one, but, for all that, the succeeding swarms, with but few exceptions, would always follow suit.]

THE OLD WAY AND THE NEW.

For the \$1.00 which you have to my credit, please send A B C complete to ———. He is a man about 70 years of age, and has kept bees all his life. He started in, last fall, with 22 swarms in boxes and gums. All died but three, and they are not safe yet. He never heard of fdn. or extractors until last week, when he came to my house with a pair of nasty, black, comb honey, full of dead bees and heads and legs. I showed him a 1 lb. sample section box with fdn. This took the old man's eye, and I showed him my A B C book, which also took his eye; so he fetched out the dollar, and said he would learn his A B C before he wintered another 22 swarms. Aleck Clemons started in with 4 swarms in boxes, lost three, and the fourth is weak.

GEO. H. MCGEE.

Marblehead, Light Station, O., April 21, 1879.

AN A B C CHILD IN JUNE.

White clover is now in full bloom, and there is a very good prospect for a large crop of surplus honey. My bees are all very strong. I had a large swarm the 7th of May, which is the earliest ever known in this locality. I have taken several frames of sealed honey from them. Bees are doing their best in boxes, trying to repay me for the labor bestowed upon them. My enthusiasm is so great that I can hardly leave them to do other work.

E. JAS. HINSHAW.

Lynn, Ind., June 4, 1879.

WIRED FDN.

I received a sample of Nellis' flat, wired fdn., at 4½ o'clock, P. M., on the 12th, and to-day it has eggs in it. A larger proportion of the eggs are in cells through which the wire passes, than in the other cells. The queen prefers them. She is a last year's tested Italian. S. MORRISON, M. D.

Oxford, Pa., June 14, 1879.

I take great pleasure in writing to let you know that I had splendid luck with my queen. I hunted the black queen out of a strong skip of black bees, and after leaving the queen cage on the racks 12 hours, I released the new queen with her bees, and, in 3 hours, I saw some of the yellow bees carrying in pollen. I am well pleased. ISAAC RUMMEL.

Warren, O., June 9, 1879.

THIEVES IN THE APIARY.

I am in great trouble about my bees. The other night, a thief was at them and opened every hive, both Simplicity and chaff. In the morning, I found the covers pushed aside, the mats nearly off from the frames, and, from a nucleus, one frame of hatching bees and a very little honey was stolen. Now, what do you say I should do? build a house like the one engraved in last GLEANINGS, or make a lock on every hive, or make a high fence around the apiary? Do you think the house apiary is as good for increasing by artificial means as the open air? JOHN DIEFFENBACH.

Crosskill Mills, Pa., June 19, 1879.

[I should build the high fence, to keep off the high winds, as well as to keep away thieves, and I would have the whole as near the house as possible. The house apiary is better for raising bees, because it protects them better from the effects of chilly nights.]

BROWN SUGAR FOR WINTERING.

The swarm I wintered over was in an old box hive, and only had about ⅔ of the hive filled with comb. By putting them in chaff and feeding them brown sugar, I brought them out strong this spring and had the earliest swarm in our neighborhood which is doing well. The 2d swarm went to the woods.

W. I. RICHARDSON.

Steubenville, Ohio, June 14, 1879.

[Brown sugar seems to answer sometimes, all right; but it cannot be depended on, because it always induces a strong disposition to dysentery. Chaff packing would do very much to remedy this.]

STRENGTHENING WEAK COLONIES BY EXCHANGING STANDS.

Would it not be a good plan to move weak swarms in frame hives into places occupied by large swarms in box hives, thus getting most of the bees into frame hives, where I want them? Can I not make artificial swarms by moving box hives, and giving the new colony a frame of brood and queen cells?

JAMES A. GREEN.

Dayton, Ill., May 28, 1879.

[You can easily do this while honey is coming in, but it is always well to keep a lookout, and see that the queens are not balled. The plan of making artificial swarms by moving heavy stocks is, as you will see, the principal one I have advised in the A B C.]

DO BEES WEIGH MORE OR LESS AFTER A JOURNEY THAN BEFORE.

I send one case of bees as an experiment, and if they should go all right, I will send some more.

WM. C. HUMPHREY.

Redfield, Iowa, June 11, 1879.

[The above mentioned package, provisioned with candy, and an ink bottle filled with water, came through without the loss of a single bee; but the little fellows looked wonderfully spare and thin, and when we came to weigh them, there were just 2½ lb. instead of 3½ lb. They looked so short and stubbed, that I began to wonder if they had not really gorged themselves with honey, to the extent of a lb., when first weighed, thinking, if this was the case, it would be rather a hard feature on the sender. Well, the day after, Mr. J. P. Stearns, Sheakleyville, Pa., sent us a large box of beautiful Italians, weighing, as he said, 7½ lb.; but when we weighed them, there was 8½ lb. Who is right? I am sorry to say that they have generally fallen short a little, even when no dead ones have been found.]

The contents of this leaf and the one following are not directly connected with the subject of bee-culture. On this account, I make no charge for them, and, if you choose, you can cut them out without reading.

Our Homes.

I was in prison, and ye came unto me.—Matt. v. 6.

IT was a bright Sabbath morning in May, and our Bible class here in the factory was just out. As we were walking slowly homeward, one of our number said there was a young man in jail for stealing. For some time I had had no class in jail, and while I heard with sorrow that it must open again, I hastened as I thought of my new charge. I asked permission to read and talk with him, and he made no objection. When asked if he was familiar with the Bible, he said he had never, that he knew of, read a chapter in it in his life.

"Have you never attended Sabbath school?"

"Never."

"You certainly attend church occasionally?"

"No; I remember having been to church only once, and that was when my brother died."

"Do not your father and mother go?"

"No."

"Do not they believe in religion?"

"I guess not. I do not know what my mother thinks, but I know my father thinks that, when we die, that is the last of us."

While talking he had taken hold of a book that lay on the table in the jail, as I supposed accidentally. I began to suspect that he had something to say, so I waited a little. Finally said he,

"Mr. Root, do you know anything about this book?"

"Why, yes; that is Moody's book, that I left here for the boys in jail a long time ago. Have you been reading it?"

"Yes; and I have taken a great liking to it."

It was "Moody's Best Thoughts and Discourses." The book has been read and re-read, during the past two years, by more than one man and boy, who had been an inmate of that stone room, and seemed to have a faculty of enlisting the sympathies of even the worst and most hardened. From the texts in that book, he had got an idea of the Bible, and questioned me eagerly in regard to it. The Bible that belonged to the jail was hunted up, and I read from it, enough to give him the spirit of its teachings. He told me why he was in jail, and confessed that he was, at least in one sense, guilty of the charge against him. It was probable, that he would be sent to the penitentiary, and I told him that the straight path before him was, to go willingly and cheerfully, and thus pay the penalty in a fair and honorable way, before God and his fellow men, for the sin he had committed. It was a new view of things to him, and one he had never before taken. His associates, during all his life, had been bad; now he had ample time to reflect. I asked him if the minister who

presided in the neighborhood near his home had never called on them. He said he had not, to his knowledge. He told me that a few months before, he had come to me for employment, and the answer he received was that I had such a long list of applicants before him, that I could give him no encouragement. Had he been able to get something to do, it seemed probable that he would have been saved from all this trouble and disgrace. How often this call comes to me, for something to do. Although being out of work is not any sufficient excuse for wrong doing, to be able to give employment to the masses is a most powerful aid to any kind of Christian work. More than one has said to me, "Mr. Root, give me a place to work, that I may earn an honest livelihood, and see if I do not keep out of bad habits, and bad company." Many times I have been inclined to doubt about such resolutions being kept, but, to my surprise, they have been kept in almost every instance. My earnest prayer is, that God may enable me to help and encourage more and more of my fellow men, in this same way.

I talked long and earnestly with my friend, but he could not see that it was right that he should be obliged to go to the penitentiary, because those who were prejudiced against him had made false statements in regard to his sin. It really seemed conclusive, from his statement, that his crime had been greatly magnified. Do not these poor fellows who get into our county jails have justice? I am really afraid, if we could come at the truth, they often do not. It is rare that *just* the right thing is done in this world, in any matter, and would it be strange if these poor fellows, with almost no one to take their part, should often be blamed for that of which they are not guilty? almost without exception, I have learned from their own lips, that they have not been keeping good company. When this is brought out, a cold and unfeeling world (as they call it) is pretty sure to say they deserve state's prison, whether they are guilty of the particular charge alleged against them or not; then the papers take it up, and it is passed off as a joke, or the poor fellows are mentioned with even less consideration than a dumb brute which has made a mistake in life and got run over by a locomotive.

Poor S——! He pointed, with his finger, to the notices which our county paper had made of himself and his grief stricken mother. It is true, he had done wrong. It is true, that he, in one sense, deserved it all; the world is glad, in fact I am glad, that my poor friend was detected in his crime, and brought to justice, and I would not, if I could, hinder the strong arm of the law from doing its work. For all that, it is with sorrow I would speak of such events, and with at least something of the same spirit that I should have, were the offender my own son instead of the son of some one else. Should my boy ever get into jail, I would that people should speak of it with sorrow, and not with light levity and jokes. "Think gently of the erring."

In the evening, I called again with our minister, who read a chapter in the Bible.

As soon as he began to read, S——'s face began to brighten, and when I asked if he was familiar with the passage, he said it was one that Moody quoted in his book. He had learned to love the Bible through reading Moody's way of explaining it. I went in again in a few days, and found he had finished Moody's book, and taken the Bible, which had become his almost constant companion. While the minister was with us, he had been asked to take part in prayer, but replied he could not just yet. On this occasion, after I had talked freely with him in regard to prayer, and told him one who was truly penitent need have no fear in kneeling to God and telling him all about it, he knelt with me, and, in his own language, asked God to help him to be a better boy henceforth, and promised to go to the penitentiary willingly, if it was His will. In his prayer, he also spoke of his former life, his conduct and associations. While kneeling there, I was most deeply impressed with the powerful argument right there before me, for the divine nature of the Bible this boy had been studying. Could any skeptic or infidel listen to that humble prayer, without a conviction that it was God's work and none other that had brought him there on his knees, in that humble and repentant attitude. It needed no stretch of the imagination to believe that the angels in Heaven were rejoicing over this one sinner brought to repentance. Some familiar lines of my childhood floated like a strain of forgotten music through my mind, and I afterward recalled to mind where I had seen them, and will give you the lines here. It was a poem by Jane Taylor, entitled "The Philosopher's Scales," and found in one of our old school readers. In the middle of the fifth verse, occur these lines:

"As a weight he threw in a torn scrap of a leaf,
Containing the prayer of a penitent thief."

Full well did I realize then, that there was more weight before God and the angels in Heaven, in that simple prayer of that untutored child of neglect, than in all the wisdom or witticisms ever uttered by the devotees of learning and wealth. Scoffers might have urged that he would not hold out, but that is not the question; the young man was on the right track then, and it was the spirit of our Savior who suffered on the cross, that shone in his eyes as he rose up. Knowing him from his past history, as he had given it to me, I feared that he might not hold out, and I feared the influence of his old companions with whom he had been so long familiar. If he could be kept away from them, if he could read none but good books, and have an encouraging word now and then, I had but little to fear, for his Savior would finish the work so well begun. But a few days passed, before a half dozen saloon keepers were arrested for liquor selling, and were put into the same room with our friend S——. When I next called, a group of these hard men sat around him, while S—— himself was perched on the table playing on a violin. Tobacco and cards were strewn on the table, and so much loud talking was going on, it was with difficulty one could make himself heard. Now came

the test. Would he brave the ridicule of his old companions gathered about him, and greet me in the frank and joyous way he had been doing, or would he, before them, think it best not to mention or indicate that he had resolved on a new life, at all? As with many an old professor of religion under similar circumstances, his courage failed him, and he kept on fiddling as though the minister and I were on an errand to see some body else, and were entirely unknown to him. Poor S——! he had not as yet learned to feel, that if God is with us, it matters not if all the world be against us. I had brought in a book which contained a hymn I had been telling him about, and the minister and I asked permission to sing it. At first, they seemed inclined to drown us with their loud talking; but, finally, they were tolerably quiet. When my companion asked to have a brief season of prayer before leaving, they assented, but a couple of them—one of whom was a visitor—picked up their cards, and prepared to engage in a game during the prayer. The sheriff, who was with us, here interposed, and told them he thought they could afford to give their attention for a few minutes, at least. We talked a little with S——, but as he seemed rather unwilling to talk, we soon left. After I had got part way home, it occurred to me, that I had forgotten my book.

A few days later, I was passing in that part of the town one evening, when I heard some beautiful singing from a company of male voices. I could not imagine where it came from, and finally forgot about it.

By the next Sabbath, S—— had been taken to the penitentiary. Before he went, however, I had a long talk with him, and he promised me to hold on to the Bible, and to be cheerful and say, "Thy will be done." On this Sabbath morning, as I went at 10 o'clock, my usual hour, I found their usual gathering place deserted. I sat down awhile, but no one came near. Finally, I went round to their cells, and inquired if they were not going out to the Bible class. The first one was not feeling well, and preferred to remain on his bed; the next was sleepy, not having slept the night before; the third could not read English, and so he thought he would be of no use in a Bible class; and so on with the whole number. It really seemed as if there was nothing more to do, but to give up having a class, for this morning at least. I knew if I once failed, it would leave the door open for future failures, and I could not bear the thought of going away without doing something for the cause. I sat down by the table where, during the few years past I had talked with so many, and heard so many sorrows and troubles, and prayed that the same guiding Presence would guide me still. I opened a little hymn book, and commenced to sing "Light in the darkness sailor," praying mentally at every word, that it might get a hold on some of those men. Before the first verse was finished, my German friend came round, sat down, and by a beautiful bass accompaniment, showed that he could sing that hymn without any book. I felt encouraged; and before the next verse was

through, the man that was sleepy came and joined us, singing a very fair tenor. This was too much for the sick man, and he came and joined in. Finally, all came out, and during the last verse, I thanked God for having answered my prayer. After singing another piece, they asked me if I could sing the pieces in that "other" book.

"Other book," said I?

"Yes; the book you left the other night."

For a wonder! The book they would not listen to or heed, when the minister and I sang out of it, they had taken hold of after I had left, and during the long dreary days while they were wanting something to do, they had sung, or tried to sing, almost every hymn in it. This was the strange, beautiful music I heard on that night. I found out what piece it was and asked them to sing it. How strange it seemed when I found that the favorite hymn with these saloon keepers was the one entitled "The Wandering Sheep." I learned it from them. The strange and touching way in which they sung it moved me deeply. There was a life and feeling in their tones, an inspiration, that we certainly did not have in the brick church across the way. I began wondering if it was not often the case, that we sing hymns in our Sabbath schools and churches, without fully realizing the meaning and spirit of the words on our lips. These men, unused to hearing sermons, and, in one sense, callous to the results of the business in which they were engaged, had caught the spirit of this hymn, in a way that was to me inexplicable. I made up my mind that I would never more decide that any class of individuals is without gentle and noble impulses which may be drawn out by the use of the right means. After our singing, we had a general and friendly talk. They spoke of their early training, and of the lessons of childhood. Without awakening in them the least feeling that I was intruding, I brought the conversation around to the nature of the business in which they were engaged. It was fully discussed. You can imagine somewhat how earnestly I prayed that God would give me wisdom in using the brief time that was allowed me, for these closing remarks. I had studied my audience, and knew pretty well their feelings, and their sensitiveness, on general points. I tell you, my friends, saloon keepers have feelings, and they are keenly sensitive, too. You can now understand why, as a general thing, I prefer to go to the jail alone. I had caught the spirit of the moment, and my fingers seemed to clasp the loose threads, as it were, as a driver would gather up the lines of a four horse team. The minds of these men were softening—softening even towards those who had been the means of having them imprisoned. Pretty soon, one declared he would give up the business to-morrow, if the people would buy out his stock of liquors. Another said "So will I," and although the rest did not say it, I knew they were inclined strongly that way.

"It is not by might, it is not by power, but it is by my spirit, saith the Lord of hosts."

I mentioned some of the above named cir-

cumstances over at the brick church, to their large Sabbath school, an hour later, and I asked them to sing that same hymn, "The Wandering Sheep," in their regular church hymn book. Do you suppose they sung it as did those men in jail? No; it was simply impossible. I then got a glimpse of the power Moody finds, in having men of this class assist him in his work. Before the class of people that most need reclaiming in our cities, towns, and villages, the hymn sung as it was by these men would possess a power in comparison with which, I am afraid, all the fashionable Sunday schools massed together would be found weak and feeble.

Now, my friends, the point I wish to bring out particularly in what I have narrated is this: These men, confined as they are, get very restless and want something to do, and, especially after a while, something to read. I have rarely seen a person, even though he was not in the habit of looking to books much as a source of amusement, who did not sooner or later take to reading while in jail. Many times have they asked me to bring or send them something to read. The book I have spoken of, giving sketches of Moody's life and sermons, has been read by almost every inmate, until it is nearly worn out. And you remember, too, the dry old book of hymns, as many of you would term it, perhaps. During the long dull week that followed, these men had doubtless, as they said, sung, or tried to sing, almost every song in the book; and, no doubt, before they got out the book had proved to them a blessing indeed.

Christian people are, in a measure, responsible for every man or boy who gets into jail. Recall what the young man told me about having never been to church, and that no one, minister or layman, had ever called to talk with them in regard to the subject of religion. It is bad to have them get so far as to have to be put into jail, but what shall we do for them after they are there? What shall we do for the men and boys that are languishing in jail this minute? What do you think about supplying them with good books and papers? On one of my visits to the jail, I found one young man, who was put in for intemperance, reading a book on infidelity. What do you suppose the effect of such reading would be? Would it ever cause him to repent and reform? Did any body ever hear of such a thing's happening? Suppose a report should go round like this: Young Mr. A. got hold of a book on infidelity, and he was so impressed with the truth of its teachings, that he reformed and became a better man from that time forward. Did any one ever hear of such a thing? If the boys of our nation who are confined in our jails are begging for something to read, what kind of books shall we give them? What do our people think about it? Listen, and I will tell you what some, at least, of the people think about it.

Our friend who wrote the excellent article in March GLEANINGS in regard to bee culture for women, as well as myself, it seems, has been thinking of the boys in jail, and she sends me the following.

Will not the kind readers of GLEANINGS gather up all the good reading matter that they can spare, and send it to the Rev. W. D. A. Mathews, of Onarga, Ill., for distribution among such of the prisons and jails of the United States as are not supplied.

Such books and papers as the following will be thankfully received: old S. S. libraries, S. S. papers, magazines to be bound, tracts and Testaments, all good religious, scientific, and agricultural papers; no political or sensational matter is desired, and no other secular papers than those mentioned above. Prisons will not distribute them.

For several years, Mr. Mathews has been connected with the missionary work of the Seamen's Friend Society, and has been traveling in bethel work. In following up some of the legitimate lines of that work, he was made acquainted with the pressing need of jails and penitentiaries for suitable instruction and religious reading, and at first presented the cause to a congregation, then invited special gifts of books, &c.

This seems providentially to have grown upon his hands. During the year 1877 he gathered and distributed over one million pages. Last year, '78, two million pages were distributed to the various prisons of Cal., Tex., Tenn., Ga., Ky., Wis., Ia., and Minn., as well as to quite a large number of smaller jails and city prisons.

He says "I could use about 200,000 pages monthly, if I could get them."

Before sending him packages write him that you have reading matter for him, and he will cheerfully answer telling you how to have it sent him free of expense, as the R. R., Ex. Cos., and Steamboats have different rules for bringing matter free.

It is a remarkable fact, that, up to the present time, *not a dollar* has been expended in the gathering and distribution of so large an amount of reading matter. The rail-roads, steamboats, and express companies *freely and cheerfully* frank packages and boxes, from N. Y. to Cal., and from Ga. to Minn., this being the already wide field of labor.

Mr. Mathews says, "The officials of the state prisons welcome me at all times, and often assure me that our efforts to lift men to a better life, through good reading, is a welcomed movement in the right direction."

Especially to the ladies would we appeal for aid. If you have but a few papers, give what you have, and get some of the neighbors to put theirs with yours and make up a package, sending all you can. It is the little brooklets that swell the mighty river.

Roseville, Ill.

Mrs. S. J. W. AXTELL.

Well, my friends, you can see clearly where you can help in the matter. I know of no better indication that God is in it, than the fact that the different transportation companies have agreed to forward the matter free of charge. No wonder the officials are glad to see friend Mathews. There is not a man, woman, or child in our nation scarcely, whose heart will not throb with sympathy, in a movement which promises to heal these poor unfortunates who are wounded and scarred by sins and crimes, rather than by bodily ailments. Our Savior used to make these people whole, by rebuking the evil spirits. Ours seems to be the mission of rebuking the evil spirits also, by giving them good books and papers. How is it, my friends? Shall we not let our kind

friend Mathews feel that the readers of the Home Papers are a power in our land, by sending him such a flood of reading matter that he will hardly know what to do with it? As it must take a good many postal cards to answer all the questions in regard to this business, I will send him \$5.00 worth of stamps, to help defray this expense.

Father, mother, sister, brother, how do you know that some one near and dear to you may not receive these very books and papers we are sending out? Will you help in the spirit of the text?—

For I was a hungered, and ye gave me meat: I was thirsty, and ye gave me drink: I was a stranger, and ye took me in:

Naked, and ye clothed me: I was sick, and ye visited me: I was in prison, and ye came unto me.—Matt. 25: 35, 36.

Now, my friends, although I do not mean to excuse the inmates of our jails, by any means, or even to intimate that they should not be considered as disgraced by getting into jails. I want to show you that there is not so very wide a difference, after all, between the poor fellows inside of our brick jail, and some others right across the street, in our brick meeting house. I have an opportunity of knowing something about it, for I cross over from one place to the other, almost every Sabbath. Let me relate a little incident.

A very bad, intemperate man, in our vicinity was converted. He was badly in debt, his family were in want, and every thing about him seemed most disheartening and discouraging. Notwithstanding all this, he rose up a new man, and went to work. So zealous was he and faithful, that he very soon was appointed superintendent of the Sabbath school of the little community near him, and by his faithful, quiet work, endeared himself to all about him. To clear off the debt on his little farm, he drew wood during the worst of the winter weather, into our town. A member of our church, an old one, and one in regular standing, ordered of him—say 10 cords, expressly stipulating that the money should be ready when the wood was delivered, for that was his way of doing business, etc. Our newly converted friend, whom we will call Mr. A., drew a few loads, and then asked for some money, as he needed it badly. The other party, whom we will call B., refused to pay any, saying the bargain was that the money was to be paid when all the wood was delivered. A. went to work and drew all the wood, and then asked again for the money; it was now refused, on the ground that it had not been delivered as soon as agreed upon.

"Well," says A., "what do you propose to do, Mr. B.?"

"Why, if you had drawn the wood as soon as you promised to, you would have had your money, for I had it then; but now it is gone, and you must wait until I get some more."

A. waited patiently, and called again, and again. B. never had any money. As I had been on quite friendly terms with both parties, more especially with A., after his conversion, he came to me for advice. I at once went and had a talk with both parties.

It did no good, and A. had his first great lesson to learn, that not all who called on God in our prayer meetings, necessarily live out Christian principles. Still later, he found where he could sell the wood for cash, and asked me what I thought about his drawing it away, and selling it elsewhere. I thought there could certainly be no objection, as it was nearly all where he piled it originally; but, to my surprise, B. threatened to arrest him for stealing, if he touched a stick of it. They both talked a little hard to each other, but I was enabled to silence them, by reminding them of their duties as professed followers of Christ. In despair, I went for our minister. He proposed when he found that B. was so set in his way, that we should all kneel in prayer, and ask God to guide us. As we were on B's premises, his consent was wanting. His reply was in substance as follows:

"Mr. R., I never object to kneeling in prayer under proper circumstances, and upon proper occasions, but, just now, I beg to be excused."

That ended it; there was nothing more to be said. Those of you who know of the temptations which a man who has been addicted to drowning troubles in drink often has under similar circumstances can understand how poor A. felt. Some of his friends advised him to recover the wood or money, by law.

"No," said he. "Poor as I am, and hard as I have worked to get out that wood, I can afford to let him have it better than I can afford to go to law with a fellow man."

If I am correct, he got a part of it in the way of trade, and the rest is due him yet.

Now, it is possible that B. would make a different story of it, and that there were extenuating circumstances, but the point I wish to emphasize is, that he refused to settle it as his minister (who certainly had no partiality towards a member of another church) advised him to do, and he also refused to kneel in prayer, or to let A. have a stick of the unpaid-for wood, back again. What shall we do with such Christians? He came to the next weekly prayer meeting, shook hands with his minister among the rest, and called him brother, and took part in prayer as usual. Had my boys in jail known the above incident, I am really afraid they would have felt themselves on better ground there in jail, than over across the way in that brick church. My friend, you would better lose every cent you have in the world, you would better give up your right hand, and your left, too, rather than kneel before God and attempt to call upon his name, with the memory of transactions like the above, unrepented of and unconfessed, scarring your souls. No wonder scepticism thrives, and no wonder churches get to be only heaps of "dry bones."

Did B. thrive and prosper, and continue to be one of the pillars of the church? He surely did not. He soon failed in business, his home was sold at less than its value, and a curse seemed to have fallen on him.

SEVERAL new feeders will be illustrated when feeding time comes again.

HOW THE SECTION-BOX CAGES ANSWER FOR LONG DISTANCES, ETC.

WE have always had much trouble in sending queens to Oregon, and so tried 3 on the 20th of May, just after the new cage was invented. Below is the result.

I received all *three* queens alive this time. A few of the workers were dead. I introduced the queen without any trouble.

GEORGE EBELL.

Baker City, Oregon, June 14, 1879.

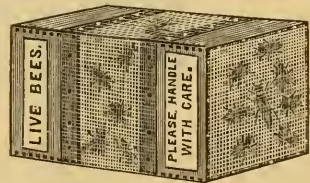
And here is one sent June 6, to Texas.

Your card, also the queen, received on the 12th. The queen was in fine condition, is introduced all right, and I think will do well. There was one dead bee and one dead drone in the cage. They had plenty of honey left. I think the section box a success in shipping bees.

LIZZIE A. RODGERS.

Farmington, Tex., June 19, '79.

Now the section boxes for sending $\frac{1}{2}$ lb. of bees have failed in one or two instances. Yesterday, the boys were putting up some packages, when I chanced to pass, and saw that one lot was suffocating. Three section boxes were fastened together, the bees were put in, and they were about fastening the last piece of wire cloth on. To tack it on, the cage was placed on a hive, in such a way as to close the opposite end. Now although this $\frac{1}{2}$ lb. of bees had a surface of coarse wire cloth, of about 16 square inches, they would all have been dead of suffocation in a very few minutes. The bees covered the wire-cloth, and crowded so hard that they forced it up and crawled out, looking as black and wet, almost, as if they had been dipped in ink. Had they been in the shade, the danger would have been much less; but they had been set down in the full blaze of the noonday sun. Beware how you put confined bees where the sun strikes the wire cloth, on which they depend for air. I left out the middle section, and united the two remaining ones with a band of wire cloth, making a package something like this:



SECTION-BOX QUEEN CAGE, TO HOLD $\frac{1}{2}$ LB. OF BEES.

You see the box cannot well be put down in such a position as to close more than one of those six, 4x4 squares of wire cloth, and they have a comb of food on each side of them.

MARTIN'S CIRCULAR APIARY.

I NOTICED, in the last No. of GLEANINGS, friend Hasty's plan for an apiary. We are all studying for the best method of managing our pets, and, if we get our ideas fixed upon a new plan, we are liable to make a hobby of it, and become blind to the merits of all other plans. While conceding the merits of the grouping system, I think there are several points that, to say the least, are inconvenient. For instance, we use a cart in our apiary, and, in our examinations, it is our constant companion.

ion, used as a seat, and for carrying empty combs, hives, etc. Now, in moving around in friend Hasty's apiary, we would be constantly in front of hives, and in the path of returning bees, which would result in more or less confusion. In relation to bees getting into the wrong hive, I think any one empty hive on the side of a group will, in some emergencies (for instance, before a thunder shower), catch many bees that belong to the other two hives. They will mix more or less in all apiaries, unless the hives are spread over a large tract of ground, and this the bee keeper who considers steps can not allow; nor can he adopt the other extreme of allowing them to stand close together on a bench, in a row, where the bees, hanging to the outside of the hives, would intermingle, as we have seen them, and all apparently be in brotherly love together.

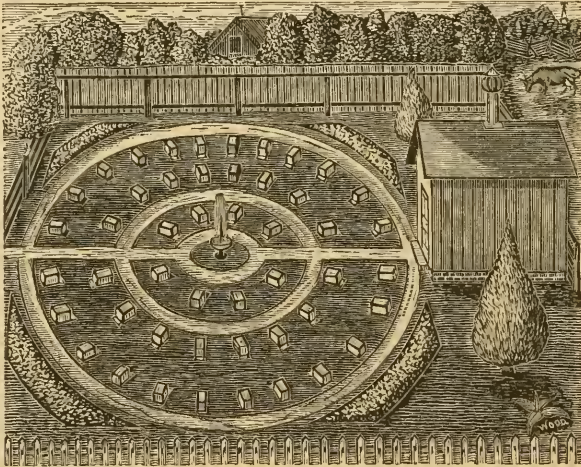
We have stated in a former article, our plan of laying out an apiary, and, having worked this system for three years, we would be loth to try another plan. We lay off our apiary in circles; the first circle contains ten hives, all facing to the centre, and placed five feet from centre to centre. The hives of the next row face outward; the next to-

ward the centre; the next outward, etc. We thus have a series of alleys or streets in our miniature city, one being a thoroughfare for the bees, and the next for the owner and his cart; for, while we are walking around in *our* street in the rear of the hives, the next street is a complete vortex of buzzing bees. Every hive in a circle faces a different point of the compass, and the bees are thus less liable to enter each other's hives. The larger the circle, the nearer the position of the hives approaches a straight line. Here we can resort to the grouping system, as seen on the exterior circle.

In the centre, we have a pole with running vines upon it. The alleys upon which the hives face are decorated with various flower beds, rare plants, etc. Our better half attends to the posies, while sawdust, tan bark, and a hoe keep down the weeds and grass. Our apiary occupies a space of 70x70, inclosed with a high board fence, and shaded to some extent by ten plum trees. I herewith send you a diagram, hoping it will be of interest to you.

J. H. MARTIN.

Hartford, N. Y., June 12, 1879.



A CIRCULAR APIARY ON THE PLAN OF J. H. MARTIN'S.

After reading the above, our engraver drew the sketch we have given, planning it for only 48 hives, instead of for nearly a hundred, as friend Martin's is. The idea of having one thoroughfare for the bees, and another for the apiarist, I like very much, but I am afraid those hives standing so nearly in the same position, side by side, would be almost sure to confound *our* bees. The grouping in the outer circles, we have omitted to show, for want of space. I mentioned last month, using coal cinders covered with white sand, about the entrances. Well, to keep the grass down, *between* the hives, we are now using a lawn mower, with much satisfaction. By running it through the alleys, in the three different directions, it leaves the ground just beautiful. The doctor said I would better go to California and stay a year, but I much prefer to stay in the apiary and run the lawn mower, and if you could see me this morning—June 27th—I guess you would decide the lawn mower

would answer every purpose if "rightly applied."

JUST BEFORE GOING TO PRESS.

[The contents of this department are supposed to be given in an informal way, just before the last form is placed in the press. You can imagine myself, hat in one hand (said hat being covered with sawdust, honey, bees wax, printers ink, etc.), and the other hand on the door knob, just ready to bid you good day until next month, giving you a summary of the last items of interest in the way of new discoveries, etc. The press man will probably cut my talk suddenly short, by telling me he cannot possibly squeeze in another single *word*, saying nothing about line or lines.]

ALTHOUGH we have received a great many subscriptions this month, so many others have expired, our record counts almost the same—4240.

SPOOLS of tinned wire, for fastening fdn. in frames, will be 8c each, or 75c per doz.; if sent by mail, 2c each, extra. Each spool will fill 35 frames.

BINGHAM'S SMOKER CORNER.

De Pere, Wis., June 12, 1879.

T. F. BINGHAM, Otsego, Mich.

Dear Sir:—Many thanks for promptness. The smokers have all been received, and give the greatest satisfaction. My own has now been in constant use for three years, lighted every day, and burning all day long during the bee season, and, though I see new ones around me, I never wish for or think of taking one. It has gone out but three times during that time, and that from my carelessness.

Respectfully, FRANCES DUNHAM.

Milledgeville, Ill., June 3, 1879.

T. F. BINGHAM, Otsego, Mich.

Dear Sir:—The two dozen smokers received, also your beautiful and well made honey knife. It is a model of neatness and durability. I predict that I shall like it. It is like your smokers, well made from first class material. That is the way I do. I use good material and spare no pains in doing accurate work. You have the inside track on smokers. The principle is clear, and I think can't be dodged by others. Your smokers beat the world for power and quick action. Respectfully

7d

F. A. SNELL.

ELECTROTYPES!



One Electrotypes Queen like this, postpaid by mail, 25c.

A. I. ROOT, Medina, O.



300



"Matchless" Burdett Organs are used in the Philadelphia Churches, and



35,000



"Matchless" Burdett Organs are used by Families throughout the World.

"Sweet as honey is the 'Matchless' Burdett."

Send for price list to

THE BURDETT ORGAN CO.,—Limited,
ERIE, PA.

I HAVE 30 hives, part Langstroth, part Simplicity, —made last season, some used a few months and some not at all,—with 2 coats of paint, 10 frames below, and 7 broad frames for sections above. Will sell them, where

5 are taken, @ 90c each.

10 @ 80c "

400 combs, built on fdn., in fine condition, @ 15c each; with the frames 16c each, where 50 are taken. Have some on metal corner frames @ 2c a frame more.

A. FAHNESTOCK, Toledo, O.

7d

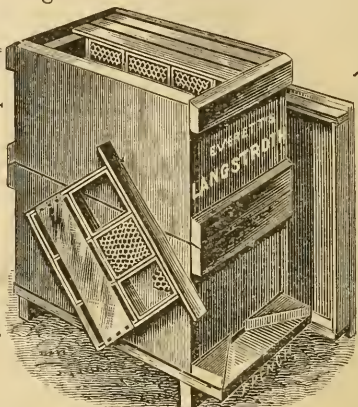
WANTED.—A permanent situation as apiarian in California. 3 years experience in bee keeping, owns a comb fdn. mill and implements.

Address O. S. DAVIS, Newbern, Iowa.

(Reference A. I. Root.)

16 page Illustrated Circular Sent Free.

Honey Extractors and Hives a Specialty.



Apiarian Supplies, Italian Bees &c., &c.

EVERETT BROS., 107 Monroe St., Toledo, Ohio,

1879 QUEENS QUEENS 1879

Bee Keepers intending to purchase queens will find it to their advantage to read our special circular before purchasing.

Address H. ALLEY,

7d

Wenham, Mass.

CHEAP GLASS AND GLASSWARE.—Box containing 50 feet glass, cut any size, \$2.25. For cheap jars and glasses, send postal card to the undersigned for price list.

M. H. TWEED,

7

Mansfield Valley, Allegheny Co., Pa.

BUY AND TRY OUR ITALIAN BEES.

Queens, \$1.: with ½ lb. of bees, \$2. Nuclei, 5 frames, \$5. Full colonies, \$10. Our bees are great workers, all bred from imported stock. We warrant safe arrival. Give our pets a trial. Address

7d

J. H. MARTIN, Hartford, Wash. Co., N. Y.

IMPORTED QUEENS!

We are receiving queens from the best districts in Italy, which we can sell at \$5. each and guarantee safe arrival.

They are to be light, large, and active. Any that do not come up to this standard we will dispose of at \$4.00 each.

If a number are ordered, a slight discount can be given.

No circular issued or Cyprian bees for sale, at present.

Registered letter or money orders sent at our risk.

C. W. & A. H. K. BLOOD,

7d

P. O. Box 234.

Quincy, Mass.

PRICE OF COMB FDN. REDUCED.—1 to 25 lbs., 50c. 25 to 50 lbs., 45c.

7

B. B. BARNUM, 38 Preston St., Louisville, Ky.

ITALIAN QUEENS, FULL COLONIES, AND NUCLEI AT REASONABLE PRICES.

I am prepared to furnish early Queens, bred from imported and select homebred mothers, warranted to be as pure as any in the U. S. Also Albino Queens. Safe arrival guaranteed. Also Hives and Apiarian Supplies. Send for price list, &c.

Address S. VALENTINE,

7d

Double Pipe Creek, Carroll Co., Md.

FLAT BOTTOM COMB FOUNDATION. High side walls, 4 to 16 square feet to the pound. Circular and samples free.

J. VAN DEUSEN & SONS, Sprout Brook,

7

Sole manufacturers.

Mont. Co., N. Y.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Nineteenth Edition Circular and Price List found in Apr. No., Vol. VII., or mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of postage required.

Canada postage on merchandise is limited to 8½ oz., and nothing can be sent for less than 10 cents.

15	Alighting Board, detachable. See A B C.	
	Part First.....	\$ 10
	Basswood trees for planting. For prices see Price List.....	
	Balances, spring, for suspended hive (60 lbs.).....	8 00
	Barrels for honey.....	2 50
	" " waxed and painted.....	3 50
	Bees, per colony, from \$7 to \$16, for particulars see price list.....	
10	Bee-Hunting box, with printed instructions.....	25
0	Binder, Emerson's, for GLEANINGS.....	50, 60, 75
0	Blocks, iron, for metal cornered frame making.....	15
	One of the above is given free with every 100 frames, or 1000 corners.....	
10	Burlap for covering bees. 40 in. wide, per yd.....	10
	Buzz-Saw, foot-power, complete; circular with cuts free on application. Two saws and two gauges included.....	35 00
0	Buzz-Saws, extra, 85c, to \$3.50. See price list.	
	The above are all filed, and set, and mailed any where.....	
60	Buzz-Saw mandrel and boxes complete for 6 inch saws. No saws included.....	5 00
	The same for 7 and 8 in. saws (not available).....	7 00
3	Cages for queens, wood and wire cloth, provisioned. See price list.....	10
30	" " " per doz.....	1 00
20	Candy for bees, can be fed at any season, per lb.....	15
0	Cards, queen registering, per doz.....	06
0	" " " per 100.....	40
60	Chaff cushions for wintering (see Nov. No. for 1877).....	35
9	" " without the chaff.....	10
40	Chaff cushion division boards.....	20
2	Cheese cloth, for strainers, per yard.....	06
10	Clasps for transferring, package of 100.....	25
	Climbers for Bee-Hunting.....	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles.....	1 50
	Comb Foundation Machines complete \$22 to 100 00.....	
20	Corners, metal, per 100.....	50
20	" " top only, per 100.....	60
15	" " bottom, per 100.....	40
	On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.	
	Corners, Machinery complete for making \$250 00.....	
12	Duck, per yd.....	20
15	Enameled cloth, bees seldom bite and propolize it. Per yard, 45 inches wide, 20c. By the piece, (12 yards).....	15
	Extractors, according to size of frame, \$6 50 to 10 00.....	
	" inside and gearing, including honey-gate.....	5 00
	" Hoops to go around the top.....	50
	" " per doz.....	5 00
5	Feeder, Simplicity, (see price list) 1 pint.....	05
7	Feeders, 1 quart, tin.....	05
4	The same, half size.....	05
25	The same, 6 qts, to be used in upper story.....	50
2	Files for small circular rip saws, new and valuable, 20c; per doz, by express.....	2 00
	" The same, large size, double above prices.....	
1	" 3 cornered, for cross-cut saws, 10c; doz.....	1 00
5	Frames with sample Rabbit and Clasps.....	10
18	Galvanized iron wire for grapevine trellises per lb. (about 100 feet).....	20
25	Gates for Extractors tinned for soldering.....	50
50	Gearing for Extractor with supporting arm.....	1 25
0	GLEANINGS, Vol's I and II, each.....	75
0	" Vol's IV and V, each.....	1 00
0	" Vol. III, second-hand.....	2 00
0	" first five neatly bound in one.....	5 00
0	" " unbound.....	4 00

	Hives from 50c to \$6 25; for particulars see price list.....	
0	Honey Knives, straight or curved blade.....	1 00
	" " ½ doz.....	5 00
	" " ½ doz by Express.....	4 75
	Labels for honey, from 25 to 50c per 100; for particulars see price list.....	
	Lamp Nursery, for hatching queen cells as built.....	5 90
0	Larvae, for queen rearing, from June to Sept.....	25
15	Leather for smoker bellows, per side.....	50
0	Lithograph of the Hexagonal Apiary.....	25
0	Magnifying Glass, Pocket.....	50
0	" " Double lens, brass on three feet.....	75
0	Medley of Bee-Keeper's Photo's, 150 photo's.....	1 00
12	Microscope, Compound, in Mahogany box.....	3 00
0	Prepared objects for above, such as bees' wing, sting, eye, foot, &c., each.....	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard.....	10
10	Opera Glasses for Bee-Hunting.....	5 00
18	Paraffine, for waxing barrels, per lb.....	25
0	Photo of House Apiary and improvements.....	25
60	Pump, Fountain, or Swarm Arrester.....	8 50
0	Queens, 25c to \$6 00. See price list.....	
1	Rabbits, Metal, per foot.....	02
0	Salicylic acid, for foul brood, per oz.....	50
10	Saw Set for Circular Saws.....	75
0	Screw Drivers, all metal (and wrench combined) 4½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws.....	
0	Scissors, for clipping queen's wings.....	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each.....	05
	Section Honey box, a sample with strip of fdn. and printed instructions.....	05
	Section boxes in the flat by the quantity, \$6 00 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive, see price list.....	10
18	Seed, Alsike Clover, raised near us, per lb.....	30
0	" Catnip, good seed, per oz. 10c; per lb.....	1 00
0	" Chinese Mustard, per oz.....	15
18	" Mellilot, or Sweet Clover, per lb.....	35
18	" White Dutch Clover, per lb.....	35
18	" Motherwort, per oz. 10c; per lb.....	1 00
20	" Mignonette, per lb. (20c per oz).....	1 40
18	" Simpson Honey Plant, per package.....	05
	" " per oz.....	50
18	" Silver Hull Buckwheat, per lb.....	10
	" " peck, by Express.....	75
	" Common " per peck.....	50
18	" Summer Rape. Sow in June and July, per lb.....	15
	A small package of any of the above seeds will be sent for 5 cents.	
5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions.....	10
	Shipping Cases for 48 section frames of honey.....	60.
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c.....	
1	Slate tablets to hang on hives.....	01
	Smoker, Quinby's (to Canada 15c extra) 50 & 1 75.....	
5	" Doolittle's, to be held in the mouth.....	25
	" Bingham's " \$1 00; 1 50.....	1 75
25	" OUR OWN, see illustration in price list.....	75
2	Tacks, tinned, per paper, (two sizes).....	05
5	Thermometers.....	40
0	Veils, Bee, with face of Brussels net, (silk).....	75
	The same, all of grenadine (almost as good).....	50
	Veils, material for, Grenadine, much stronger than tarlatan, 21 inches in width, per yard.....	20
	Brussels Net, for face of veil, 29 inches in width, per yard.....	1 50
	Wax Extractor.....	3 50
	Copper bottomed boiler for above.....	1 50
5	Wire cloth, for Extractors, tinned, per square foot.....	10
2	Wire cloth, for queen cages.....	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively.....	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot.....	05
	All goods delivered on board the cars here at prices named.	
	A. I. ROOT, Medina, Ohio.	

BOOKS for BEE-KEEPERS and OTHERS.

Any of these books will be forwarded by mail, *post-paid*, on receipt of price.

In buying books, as every thing else, we are liable to disappointment, if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage, shall not be disappointed, and therefore, I am going to try to prevent it by mentioning all the faults so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve, I have marked with a *; those I *especially* approve, **; those that are not up to times, †; books that contain but little matter for the price, large type and much space between the lines, ‡; foreign, §.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

A B C of Bee Culture, Part First, Second, Third Fourth or Fifth.....	25
A B C of Bee Culture. Parts 1st, 2d, 3d, 4th & Fifth in one Vol. Paper, \$1.00. Cloth..	1 25
Cook's New Manual**.....	1 25
The same in Paper.....	1 00
Quinby's New Bee-keeping**.....	1 50
Langstroth on the Hive and Honey Bee***.....	\$2 00
Bee-keeper's Text Book*. Revised, Muslin... Paper.....	1 00
A Manual of Bee-keeping, by John Hunter*§..	1 25
Dzierzon Theory**.....	20
How I made \$350 a Year with my Bees†.....	25
"Blessed Bees"‡ A fascinating book, but it is fiction and <i>not facts</i> . Price.....	1 00
Putnam's Sons.....	
Honey as Food and Medicine.....	10
Art of Saw-filing*.....	75
Fuller's Grape Culturist**.....	1 50

MISCELLANEOUS HAND BOOKS.

Ten Acres Enough**.....	1 00
Five Acres too Much*.....	1 50
Tim Bunker Papers*.....	1 50
An Egg Farm, Stoddard**.....	50
Book on Birds, Holden*.....	25
Window Gardening.....	1 50
Purdy's Small Fruit Instructor*.....	25
How to Use The Microscope.....	75
Play and Profit in my Garden*.....	1 50
"Our Digestion," By Dio Lewis**.....	2 00
Onion Culture*.....	20
Potatoe Posts, by Prof. Riley**.....	50
Practical Floriculture*.....	1 50
Gardening for Profit**.....	1 50
Strawberry Culturist, Fuller*.....	20
Small Fruit Culturist, Fuller*.....	1 50
Forest Tree Culturist, Fuller*.....	1 50
How to Build Hot-Houses, Leuchs§.....	1 50
Draining for Profit and Health, Warring.....	1 50
What I know of Farming, Horace Greeley.....	1 50
Injurious Insects, Prof. A. J. Cook**.....	10
How to Make Candy**.....	50
Fret Sawing for Pleasure and Profit**.....	50
Moody's Best Thoughts and Discourses**.....	75

TO HANG IN YOUR DOOR YARD.



Signs like the above, 4½x18 inches, painted in bright colors, the board lined with tin to prevent warping, for only 25c each; if sent by mail, 35c. A sign of the same kind, saying "This Property for Sale," same price.

A. I. ROOT, Medina, O.

Names of responsible parties will be inserted in either of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per year.

\$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent before July 1st. If wanted sooner, see rates in price list.

*E. W. Hale, Wirt C. H. W. Va.	1-12
*A. I. Root, Medina, Ohio.	
*H. H. Brown, Light Street, Columbia Co., Pa.	7-9
*E. M. Hayhurst, Kansas City, Mo.	1-12
*J. M. C. Taylor, Lewiston, Fred. Co., Md.	1-12
*Paul L. Viallon, Bayou Goula, La.	8td
*J. Oatman & Sons, Dundee, Kane Co., Ill.	2-1
*J. E. Waleher, Millersville, Christian Co., Ill.	3-8
*S. M. Hitechoek & Co., Warthen, Wash. Co., Ga.	3-8
*J. B. Keeler, Carlinville, Ill.	3-8
Miller & Hollam, Kewaskum, Wash. Co., Wis.	4-4
*D. A. McCord, Oxford, Butler Co., O.	4-9
*J. T. Wilson, Mortonsville, Woodford Co. Ky	4-4
*S. D. Moore, Atlanta, Ga.	5-10
*Amos Johnson, Sugar Grove, Warren Co., Pa.	5-10
H. S. Elkins, Kennedy, N. Y.	5-10
Henry Smith, Brooklyn, Green Co., Wis.	7-8
*D. S. Given, Hoopeston, Vermillion Co., Ills.	8
J. L. Bowers, Berryville, Clarke Co., Va.	7-12
J. P. Sterritt, Sheakleyville, Mercer Co., Pa.	7-8
*Ila Michener, Low Banks, Ont. Canada.	7-8
*J. H. Martin, Hartford, Wash. Co., N. Y.	7-9d
*T. G. McGaw, Monmouth, Warren Co., Ills.	7-6
B. B. Barnum, 380 Preston St., Louisville, Ky.	8
*S. W. Salisbury, Kansas City, Mo.	7-9
*A. W. Cheney, Orange, Franklin Co., Mass.	8-9d
Owen Sowthgate, Smithville, Burl. Co., N. J.	8-10
A. L. Klar, Puna, Christian Co., Ills.	8-9d
*King & White, New London, O.	8tdf

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.	
H. Seovell, Columbus, Cherokee Co., Kans.	4-3
Nichols & Elkins, Kennedy, N. Y.	5-10

Bees For Sale.

ONE DOLLAR PER LB.

Names inserted in this department the first time without charge; afterward, 20c each insertion, or \$2.00 per year.

Those whose names appear below signify that they are willing to furnish bees, without hives, during the coming month, at \$1.00 per lb., the purchaser being required to bear all express charges. Safe arrival guaranteed.

[Express Cos. have promised to return cages to owners free of charge, if made very light.—ED.]

Jas. P. Sterritt, Sheakleyville, Mercer Co., Pa. 7-8

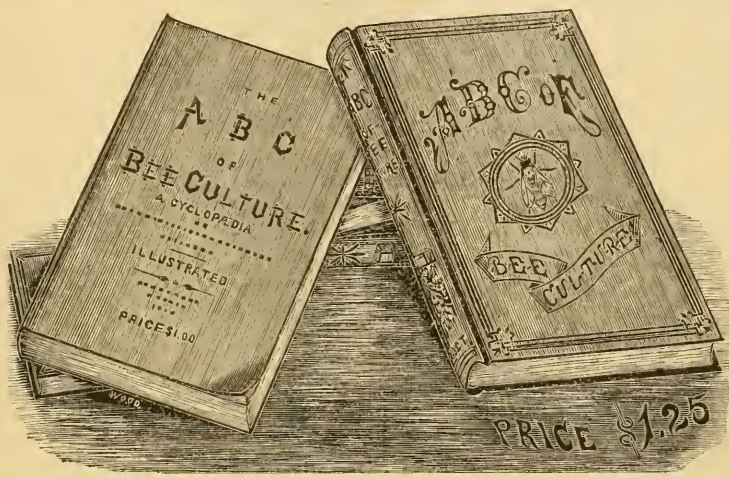
1879. QUEENS! QUEENS! 1879.

We can supply very large, very yellow, extra prolific, and pure queens, by mail, at \$1.00 each. All from imported mothers. Ten per cent off above prices by the dozen. Circulars giving our method for raising pure queens sent free.

8d

H. ALLEY, Wenham, Mass.

THE A B C of BEE CULTURE.



FOR several years, it has been my ambition to be able to write a book on bee culture, so clear and plain that not only any boy or girl, but even an old man or woman, with the book and a hive of bees, could learn modern bee culture, and make a fair, paying business, *even the first season*. This is a great undertaking, I grant; and it will require some one with far greater wisdom than mine, to do it the first time trying. After watching beginners, and answering their questions almost constantly, for years, I came to the conclusion, that the only way to do it was to "cut and try," as carpenters say, when they can't get the exact dimensions of the article they wish to make.

To cut and try on the A B C book, I have invested over \$2,000 in type, chases, etc., sufficient to keep my whole book standing constantly in type, that can be changed at a moment's notice. The books are printed only as fast as wanted, and just as soon as I see I have omitted anything, or have made any mistake, the correction is made before any more books are sent out. To show you how it works, and how it succeeds, I will give you an illustration.

A beginner writes to know if it is of any use to keep a queen, after she is eighteen days old and does not lay. Now I know very well that a queen should lay when from ten days to two weeks old; and also, that they will sometimes not commence until they are three weeks old, and then make good queens. Now, although I directed that they should be tossed up in the air, to see if their wings were good, when they did not lay at two weeks of age, I did not say, if their wings proved to be good, how long we should keep them. If I could spare the time of the colony, I would keep a good looking queen that could fly well, until she is 25 days old; if crowded for a place to put cells, I would kill all that do not lay at 18 or 20 days old.

I have just put the above in the A B C, and that is just the way I am going to keep doing. You see, you beginners are, ultimately, to build up the book.

A B C came all right. It is all perused and found to excel anything of the kind I ever saw. It is so plain any one can understand how to go right to work with pleasure. J. M. SLOAN.

New Bethlehem, Pa., July 15, 1879.

The book, as it is now, contains about 275 pages and about 175 engravings. It is furnished complete in one, or in five different parts. The contents and prices are as follows:

Part First, will tell you all about the latest improvements in securing and Marketing Honey, the new 1 lb. Section Honey Boxes, making Artificial Honey Comb, Candy for Bees, Bee Hunting, Artificial Swarming, Bee Moth, &c., &c.

Part Second, tells all about Hive Making, Diseases of Bees, Drones, How to Make an Extractor, Extracted Honey, Feeding and Feeders, Foul Brood, etc, etc.

Part Third, tells all about Honey Comb, Honey Dew, Hybrids, Italianizing, King Birds, The Locust Tree, Moving Bees, The Lamp Nursery, Mignonnette, Milkweed, Motherwort, Mustard, Nucleus, Pollen, Propolis, and Queens.

Part Fourth tells all about Rape, Raspberry, Ratan, Robbing, Rocky Mountain Bee Plant, Sage, Smokers, including instructions for making with illustrations, Soldering, Sourwood, Stings, Sumac, Spider Flower, Sunflower, Swarming, Teasel, Toads, Transferring, and Turnip.

Part Fifth tells about Uniting Bees, Veils, Ventilation, Vinegar, Wax, Water for Bees, Whitewood, and Wintering. It also includes a Glossary of Terms and Abbreviations used in Bee Culture.

All are Profusely Illustrated with Engravings.

Nothing Patented. Either one will be mailed for 25c; ½ doz., \$1.25; 1 doz., \$2.25; 40, \$6.00.

The five parts bound in one, in paper, mailed, for \$1.00. At wholesale, same price as GLEANINGS, with which it may be clubbed. One copy, \$1.00; three copies, \$2.50; five copies, \$3.75; ten copies, \$6.00.

The same neatly bound in cloth, with the covers neatly embellished in embossing and gold, one copy, \$1.25; three copies, \$3.25; five copies, \$5.00; ten copies, \$8.50. If ordered by freight or Express, the postage may be deducted, which will be 3c on each 25c book, 10c on the complete book in paper, and 12c each, on the complete book in cloth.

A. I. ROOT, Medina, O.

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In the centre of our central apiary, stands a flag pole, and from its summit the stars and stripes are flung to the breeze. On the flag is the inscription, "By Industry We Thrive." The flag was made by the girls of our establishment.

At one time during July, we were 150 orders behind on dollar queens, but in less than a week we were almost as many ahead of orders. We now have a large stock on hand, ready for shipment by first express. For queens at wholesale, see advertisement.

THOSE out door feeders that are working such wonders in our apiary, are only a half gallon fruit jar inverted on the board figured last month, on page 264. 25cts. will pay for the whole apparatus, and, with it, you can feed (of thin syrup) a half gallon an hour, all day long.

We have built one of the shingle, chaff, tenement hives, and it has now 4 swarms of bees in it. I tell you it is just handsome. We have put a little more work on it than has friend Hutchinson, but even as it is, it can be furnished without furniture, for about \$10.

DOLLAR QUEENS AT WHOLESALE

Young, fertile, laying queens, from imported mothers, safe arrival guaranteed, each \$1.00; per half dozen, \$5.50; per doz., \$10.00; 50 for \$40.00; 100, for \$75.00. I cannot promise to continue these low figures after present stock is exhausted. Therefore you must order at once, if you want them. This month is perhaps the most profitable time to Italianize of the whole year, for there is no loss in having the hive a short time queenless.

A. I. ROOT, Medina, O.

I CAN ship good Glass Cutters for 25 cents, post-paid. Special terms by the dozen.
8 H. M. MOYER, Hill Church, Berks Co., Pa.

H. M. MOYER, Hill Church, Berks Co., Pa.

Tested Queens for \$1.00.

Home bred, young, vigorous, beautiful; *purity* and safe arrival *guaranteed*. Address, 8d J. A. WARD, Madisonville, Hamilton Co., O.

IMPORTED QUEENS

Just received. Price \$5.00. Safe arrival guaranteed.
MISS M. ANDREWS, Medina, Ohio.

COMB EDN., 45c per pound. Choice Queens, \$1.00. Nuclei and full colonies, *very low*. Smokers, etc.
B. B. BARNUM,
380 Preston st., Louisville, Ky.

WELL-AUGER, Ours is guaranteed to be the best in the world. Catalogue free. 8-10 W. W. Giles, 149 Clark st. Chicago, Ill.

ITALIAN QUEENS
RAISED FROM IMPORTED MOTHERS.

Italian Queens raised from Imported Mothers	
per ½ dozen.....	\$5 00
Bees, full colonies, from.....	\$5.00 to 10 00
One Frame Nucleus with Tested Queen.....	3 00
" " " Dollar.....	2 00
Section Boxes and Comb Edn. Cheap!	

8d

CLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VII.

AUGUST 1, 1879.

No. 8.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.

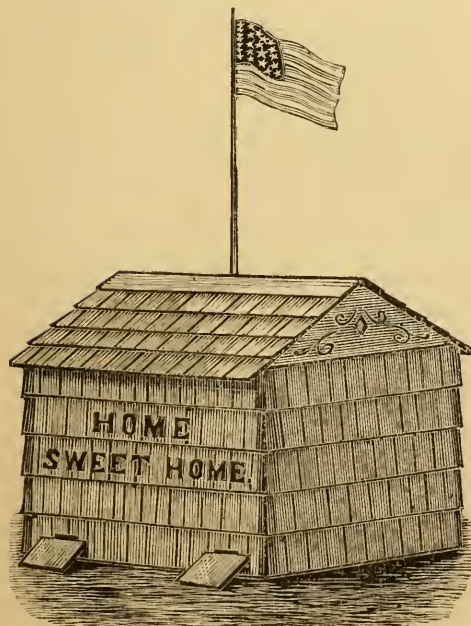
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TERMS: \$1.00 Per Annum in Advance; 3 Copies for \$2.50; 5 for \$3.75; 10 or more, 60c. each. Single Number, 10c.

SCRAPS AND SKETCHES. NO. 8.

SHINGLE HIVES.

DEAR NOVICE:—In that flying trip which you took a few years ago, through Michigan, I do not suppose that you visited any shingle mills. Perhaps you saw a few mills from your car window, and, in the passing glance that you gave them, I wonder if you noticed that some of the “shanties” composing the “huddles” which surrounded the mills were “sided up” with *cull shingles*. Lest you did not notice it, I must tell you that these cheap, temporary buildings, which would otherwise be uninhabitable in cold weather, are quite cosy and comfortable when they get on their “shingle overcoats.” It was the sight of buildings covered in this manner that made me think, “Why can’t we make our chaff hives out of shingles?”



HUTCHINSON'S SHINGLE CHAFF TENEMENT HIVE.

In this case, thought was soon followed by action, and I not only made some ordinary, two story, chaff hives, out of cull shingles and cull lumber, but I

made a—a—well, look at the above picture of it, and then call it what you please; I should call it the shingle-chaff-tenement hive, if it was not such an “awful” long name. I will not attempt to give a detailed description of its construction, but I will give a few hints, and then you must “think out” the rest of it for yourself.

It is two stories high, and is built to accommodate four swarms, each swarm occupying a “corner.” Light frames, something like large picture frames, are used to nail the shingles to. As the shingles are laid six inches “to the weather,” and as the hive is about two feet high, it requires five of these large frames. The row of nails next to the top row is covered with a strip of lath, to keep the sun from drawing them out, while the topmost row is protected by the lower edge of the top or roof.

The inside of the lower stories is made by nailing shingles perpendicularly inside of wooden frames, which are, of course, made just the right size to give the lower stories the proper dimensions. But two of these frames are required for each compartment, one at the top and the other at the bottom. Two sides of the frames which are at the bottom are formed by long strips of wood that reach clear across the whole hive, the ends resting upon the lowest large frame to which the outside shingles are nailed. The other two sides of these lower frames are formed by nailing strips of wood between the long cross pieces just mentioned. The thick ends of the shingles are placed uppermost, and a rabbet to hang the frames in is formed by nailing the shingles lower than the upper edge of the surrounding frame.

The upper story is first divided into two equal apartments, by a long division board made of $\frac{3}{4}$ lumber, which extends the whole width of the hive; then these two apartments are again divided by division boards made of $\frac{3}{4}$ lumber. The inside edges of the large frames, to which the outside shingles are nailed, touch the outside ends of these division boards, and are fastened to them with nails. To the lower edges of these division boards are nailed two sides of the frames to which are attached the upper ends of the shingles composing the inner walls of the lower stories. The topmost large frame, to which the outside shingles are nailed, is made of wide strips, so that it reaches the inside walls of the hive, and makes a covering for the chaff filling.

The inner walls of the upper stories, that come next to the outside of the hive, are also made of shingles. The upper ends of the shingles are nailed to the inside of the topmost large frame, and the

lower ends are nailed to the outside of the frames to which are fastened the upper ends of the shingles forming the lower stories.

The "gable ends" of the cap or roof are made of $\frac{3}{8}$ lumber, and between their upper edges are fastened cross pieces, to which is nailed the shingle roof. The roof is fastened at one side with hinges, and when I tip it back to open the hive, the flag-staff strikes the ground, and supports the roof in a proper position.

I painted, or rather whitewashed, the hive with skim milk and waterlime, and then "painted on" some corner boards and a cornice with skim milk and Venetian red. A nice bed of sawdust was made in front of our house, this little "tenement house" was placed upon it, and then four "families" moved, or rather *were* moved, into it.

I have, as yet, had but little experience with tenement hives, and cannot say whether I shall like them or not; but I *know* I shall like the ordinary, two story, chaff hives, with the walls made of shingles. The plan of making an ordinary, two story, shingle, chaff hive is so nearly like that given for the construction of the shingle-chaff, tenement hive, that any further description would be superfluous.

Sometime ago a correspondent in GLEANINGS told how he made some cheap chaff hives out of pieces split from an oak log; but, in this locality, cull shingles can be bought cheaper than the pieces could be split. In the May No., Stephen Young describes a *shingle roof* for chaff hives, and I have been "awfully afraid" that *somebody* would get to making *whole hives* out of shingles, and thus spoil my "story" before I "could get round to tell it."

One thing in favor of shingle-chaff hives is the cheapness of the materials from which they are constructed; while they can be painted or whitewashed so as to give them a very neat appearance. Another point in favor of their construction is that, although a buzz saw is a convenience, it is not a necessity; and the great mass of bee keepers can make them during the leisure of their winter hours.

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

I did notice those shingle covered buildings, friend H., and I have several times thought of shingle covered chaff hives; but I must confess I never thought of a shingle covered tenement chaff hive, until you suggested it. Since reading your article, I have had one made, and, although not just like yours, it presents very much the same appearance. The roof is not steep, and therefore perhaps a little lighter, and I am very much pleased to find that I can get at any one of the four hives with the greatest ease, by simply sliding the cover backward in any direction. In fact, it is easier to uncover than either the ordinary chaff or Simplicity hives. Just at present, we are thinking very strongly of having enough of them made (25) to contain 100 colonies. We have made ours of shingles that we sell for \$1.75 per M.

CHEAP PAINT.

In regard to the cheap paint; about ten years ago I painted an out building with water lime and sweet new milk (couldn't get enough skim milk), and it has a very fair color on it yet. The lime and milk makes a very fair stone color. Put it on with a white wash brush. Work must be rough.

The "Growlery."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

I HAD begun to think we were getting over the necessity of a Growlery department, especially, in regard to lumber work; but alas! it seems there is to be "no peace for the wicked", even in this world. My friend says I have been giving all smooth letters; I am afraid he is right; but, really, I have not *had* any very rough ones lately. Let us by all means have both sides; I prefer to be blamed more than I deserve, rather than to have more praise than is due.

I received the hives I ordered of you, with the other fixtures, about May 13th; and as poor a lot of stuff, I hope I shall never see again. I thought, from the looks of the two hives I had of you all nailed, that I could depend on you for good stock; but I think your idea must be, that hives in the flat are also in the rough. I had to use smoothing plane on nearly all the hives; the joints were not square; some ends were $\frac{1}{4}$ inch too long, and had to be dressed down; the covers were also very rough on the face side and edges; some of the frames were dove-tailed so they would not go together even; the slats in honey rack were too wide for the gauge strip, and they all had to be taken off, making the frame very narrow. The so called prize boxes take the rig off from the lot. I will send you one as a sample: the $\frac{5}{16}$ narrow pieces were 132 pieces short; but don't send them, for I would not pay the freight on them to have them, if I had not paid for the sections. I had samples from others, and they were all way ahead of those you sent. The lumber you used for those hives was not even second clear; and, as for your cold blast smoker, it is useless. I would as soon take a piece of punk, such as the boys use on the 4th, and try to blow through it. I was never more disgusted with a lot of stuff in my life. You tell in GLEANINGS how nice you fix every thing, all cut to a length and thickness, but it is all paper work, nothing more.

I see a good many soapy letters in GLEANINGS, but this is not that kind. Perhaps you would do better by me, if I sent that kind of a letter as I have known of your doing. I bought my bees of you in the first place, the order amounting to \$25. I sent to you last season for a queen, and you sent my order off to some one who sent me a worthless queen, and a neighbor of mine sent to you for one in two days, and got a nice one. Now I am obliged to buy another. I don't think you have dealt squarely with me at all. You have 80 cts. due me and the lack on sections should be about 75 cts.; so please send me a queen. If you should send me two, it would be no more than justice. J. W. S.

Bethel, Conn., July 11, 1879.

I thank you, friend S., for your criticism, and myself and the foreman of the wood work have examined into every point mentioned. In regard to our set up and painted hives being better, there is certainly a mistake; as "Uncle Nat." who puts up the hives, always selects the poorest in the pile, because his daily practice has probably given him more skill than the average bee keeper possesses. To be sure, he uses a smooth plane, and in the directions for putting up hives, I have so advised you to do, although very fair hives can be made without one. We have, this season, used No. 1 barn boards for the body of the hives. Remember we could not possibly use clear lumber at the very low prices we ask, nor is it necessary. A hive, such as we furnish

and use, will do just as good service in the apiary, as if it was made from lumber perfectly free from knots. The prize boxes were made after a sample received from Mr. Doolittle, and I think will compare favorably with others for the price. We make a planed and dovetailed box much nicer, but they cost more money, as you will see by the price list. You seem to intimate, friend S., that I am partial to customers. Do you not see how impossible this is? I can no more remember my customers than nothing in the world, and I only know you as one of the vast brotherhood related to me by Adam, and one whom I wish to treat kindly and fairly. It matters not what kind of a letter you write, or how large your orders have been, only that we give *every* body a discount on large orders, the clerks have instructions to treat all alike. I am asked daily to pick out nice dollar queens; my friends, you forget. If you have the nice ones, who are to have the rest? This would certainly be partial. Is it not better to give the poorest boy in the juvenile department just as good goods as the man who has a thousand lives and money in the bank? I am anxious to please you all, but no one more than another. The queens are sent, and if you will tell me what will make the rest satisfactory. I will try to do it.

Are not the people down East a little nicer in mechanical work than elsewhere, and have you not exaggerated the faults of your goods a little, friend S.? Below is a letter that came right along by the side of yours. Does it not illustrate the different ways in which people look at things, rather than a difference in the goods?

The "Smilery."

This department was suggested by one of the clerks, as an opposition to the "Growlery." I think I shall venture to give names in full here.

THE story and a half hive and contents, as ordered, came promptly to hand yesterday. Thanks for your diligence. For you to know how satisfactory the items were, would amuse you, and, I suppose, please you also. Seldom has \$3.35 done us so much good. How you can get up such nice work, for so low a price, is a wonder. It is a marvel of mechanical contrivance, completeness of machinery, as is evident by the work done, and also of utility and economy. The Express expenses were proportionally generous to your moderate bill. The charges were 75c. Give the Ex. Co. credit for quickness also. The completeness and cheapness of the frames, whether all wood or metal cornered, are wonderful. There was only one thing we did not like, and that, I suppose, was because we tasted it, and it is not designed for the bee-keeper to live on, but for the bees. I mean the grape sugar. If the bees like it, it is all right. You will be pleased to know it was just the reverse of this with the smoker—the bees don't like it at all, when it is lit and going; consequently, it is just what my wife wants, and myself also, at suitable times. The division board, tin-separators, bee feeder, and mat were all praised as soon as the hive was opened. A package supposed to be a chaff cushion was laid aside, with the thought that our bees would soon gnaw through the paper sides, if a sufficient inducement were presented to their appetite or curiosity. In an hour or two, we began to think one failure had to be reported to you—the comb-fdn. Much importance attached to it. Our judgment had already been convinced of its excellence, and our interest greatly excited to try

it; for when we had our last experience with bees, comb fdn. was only a hypothesis, and hardly a "working" one. So we regretted that that item had been overlooked; but we thought, mistakes will happen even with the "best regulated." It proved well for me that I had such charity, for I found I needed it myself. There was the pound of beautiful wax guide, inside the frame with the yellow paper sides. It was all right, and every thing satisfactory.

R. A. BROWNE.

New Castle, Penn., July 10, 1879.

Ladies' Department.

REPORT FROM MRS. AXTELL.

IN our home apiary, we have not yet had a single natural swarm; but bees have built up very strong, and have stored some surplus honey, perhaps from 20 to 35 lbs. per colony. The apiary 4 miles away has done better; has given a few swarms and more honey. The spring has been very dry. White clover has bloomed in profusion, but not given very much honey. We have taken off about 1400 lbs. of comb honey, and 3½ barrels of extracted. Part of the extracted honey was left over from last fall, in the combs.

We did not sell one colony from advertising: most persons wanted bees in the Langstroth hive. Some thought they could get bees cheaper, although we asked only 7 and 8 dollars per colony. We always give such good colonies and well finished hives, that we feel that we could not afford colonies cheaper, except when a number are taken. We have sold 12 fine artificial swarms at \$4.00 each, without hive or combs; the large Quinby frames filled full of straight worker comb, full of brood and honey, are worth nearly a swarm. Working bees for honey, has always paid us better than for bees or queens.

Mrs. S. J. M. AXTELL.

Roseville, Ills., July 4, '79.

NEW SWARMS LEAVING THEIR HIVES.

Well, I have waited and watched till to-day, and they (the bees) finally swarmed, and I hived them nicely without any trouble; not a sting; the first I ever did, too, and I felt proud. Husband was lying on the lounge and I came in and told him, and kept watch of them three hours; then they came out and left. I do not believe they were dissatisfied with the quarters I had assigned them or they would not have stayed as long as they did. I have studied on it, and come to the conclusion that with bees, "what is to be will be"; but I wish they had forgotten themselves a few hours longer; I would have had them over night at least, and then, do you think they would have gone at all? Your word shall be my law in that matter.

Mrs. E. C. PECK.

Toronto, Kan., July 15, 1879.

Thanks for your kind letter, my friend; but if my word is to be your law, you will have to give up your doctrine. "What is to be will be," and put in its place concerning bees leaving their hives, at least, "Where their owner decides they are to be, they will be." Had you taken the precaution so often recommended in our books and journals, of giving them a frame of brood when leaving them, I think they would have been there still. I know of no other way of making a sure thing of their not decamping. Did you not set them right in the hot sun? This alone has caused many a colony to leave. Getting them to stay over night would have been no guarantee of their staying; they often leave next day, and sometimes after they have stayed two or three days.

INTRODUCING TO STUBBORN BEES.

I thought I never would get my bees to take the last queen. I worked with them 10 days before I succeeded. By following your directions almost any queen can be introduced without loss.

Washington, Ky., July 7, 1879. J. R. ANDERSON.

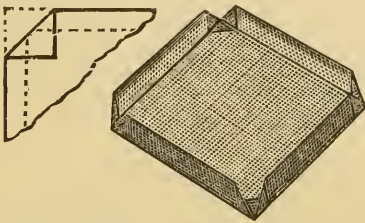
THE SECTION BOX QUEEN CAGE—IMPROVEMENTS.

I HAVE made two boards, size $4\frac{1}{4} \times 4\frac{1}{4}$, like those mentioned on page 2, Jan. No., and tacked wire under the hole (diameter 3 inches), to fasten on to my section introducing cage, and find them quite handy for putting in and taking out the queen, &c. So I said to myself, "Why can't friend Root cut tin of the proper size, solder on the wire cloth, turn down the edges of the tin so it would fit nicely over the section, and furnish them to his customers, thus saving this tacking and pulling of tacks and bother with wire cloth? They will answer nicely for shipping queens. Simply tie a string around, and it is complete. Now, friend Root, I don't expect \$25. for this invention, but hope you will try them, and I think you will be satisfied that it is a step in advance.

L. S. JONES.

New Philadelphia, O., July 11, 1879.

There would be two objections to your wood board,—you could not see the queen, unless she happened to come before the hole in the board, and you have more extra pieces to make and handle. For some time, we have been using wire cloth folded as in the following cut:



WIRE CLOTH CAP FOR SECTION BOX QUEEN CAGE.

The lines show where the folds come. When done, it shuts over the section cage, like the lid to a bandbox, and two rubber bands will hold it perfectly secure. You will observe the ragged ends of the wire cloth are all folded in out of the way of catching on clothing or other objects, as wire cloth is so apt to do. We can furnish such wire cloth caps for 1c. each, and the pair of rubber bands for 1c. more. This makes about 4c. for the section-box queen-cage complete. They can be sent by mail, complete and set up, for 6c. The wire cloth band, shown last month, to unite two such cages for holding $\frac{1}{2}$ lb. of bees, will cost 3c.; or the cage, complete, for $\frac{1}{2}$ lb. of bees, 9c.; if sent by mail, 14c. I am thus particular in going into all these details, because the selling of bees by the lb. promises to be a great industry. The new arrangement of the wire cloth caps enables us to dispense with turning the combs down on their sides, while tacking, which operation is pretty sure to shake new honey out of the cells. The remaining point to be considered is, getting into the sections combs that will not break out. We first fastened them with thorns or pegs; but, of late, have been using tinned wire sewed through, both ways. For comb, we use all the old comb about the apiary, and thus get rid of all odd bits. For very warm weather, it is desirable to have the honey capped.

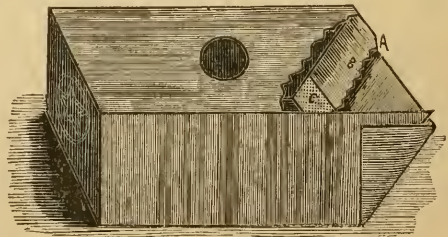
HOW TO GET THE BEES IN THE CAGES.

Have a light hive made to represent exactly the hives you use, but have it so that the cage can be put into it in such a way that all bees going in at the entrance must go into the cage, the wire cloth being omitted on one end, of course. Well, just lift your hive off its stand, and set this one in place. Set aside the frame containing the queen, then shake bees from other frames, in front of the entrance, until you judge your lb. or half lb., as the case may be, has gone in. Now slip on the wire cloth cap, and place the box on your scales. If not enough bees, put in some more bees in the same way; if too many, slide the cap back until enough take wing, to have your scales show the proper amount. Of course, you have taken the weight of your cage, before putting your bees in. The "Favorite Family Scale" is very handy for this purpose. With the troubles we have had, and are continually having reported, in regard to loss of queens, it is no wonder that the plan of buying $\frac{1}{2}$ lb. or more of bees with them is rapidly gaining favor. It is almost equivalent to buying a colony, with the queen already introduced.

FEEDING AND FEEDERS.

IN spite of all that has been said and the number of feeders that have been offered, it seems we are not through yet. Both Prof. Cook and L. C. Root, in their new books, describe feeders made in, or on, a division board. The idea of feeders in the division board or sides of the hive is very old, having been suggested as long ago as the first volume of GLEANINGS; and modifications of it have been presented several times since. The objections are, that the openings in the division board, or the substitution of metals for wood, render the hive less impervious to frost; also the use of floats, I consider too much machinery, and that of a kind, too, that is continually getting out of order. A feeder, like a hive, should, if possible, have nothing loose about it. It should also never daub or kill bees, and, if possible, should keep itself clean and free from stickiness.

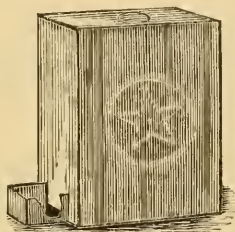
As oyster cans are cheap almost everywhere, several devices for using them have been sent in, during the past few weeks. D. S. Given, of Hoopestown, Ill., sends the following:



GIVEN'S OYSTER CAN FEEDER.

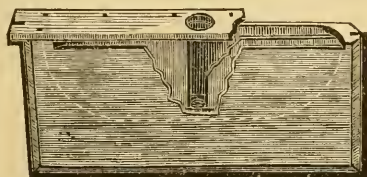
The can is laid flat on its side, as you see. A part of the top is broken away to show the construction. The end is bent up obliquely, as shown at A, making a sloping

side for the bees to walk down on. The partition, B, is parallel to A, and has a strip of wire cloth or perforated tin soldered at its lower edge. To use it, suppose we pour in syrup until the liquid comes clear up to the upper edge of A. Now cork up the hole, and the bees can only get feed at the opening A. As the liquid sinks, they follow down, until all is out, the wirecloth preventing them from getting in to the main apartment.



MRS. MOLLIE HEATH'S OYSTER CAN FEEDER.

This, as you will see, is the invention of a lady. The principle is the same as that of a fountain ink stand. It is quite similar to Hains' and other atmospheric feeders. My objection to both of these is, that so few bees can work at it at once.



BLOOD'S DIVISION BOARD FEEDER.

This is made simply of an inch board, with a strip of rubber at each end and at the bottom, to make it fit closely in the hive. The top bar is tacked on lightly, and a hole bored down through it into the board, reaching nearly to the bottom. With a thick large buzz saw, either set coarsely or wabbling to cut $\frac{1}{4}$ inch wide, it is grooved as shown by the white dotted line in the cut. These cuts are far enough apart, so that $\frac{1}{8}$ of wood is left between them. The bees have access as shown in the cut, and never drown, because they easily hold on to the rough wood sides. I have not tried this, but it seems to me we should daub the bees when filling it up. With honey or cane sugar, this does not bother very much; but with grape sugar, it is quite an objection. I think I would prefer a feeder, any way, that leaves the bees as clean as they are after getting stores from a clover field. The Hains feeder, shown in A B C, will do this, and, while I think of it, friend Hains paid us a visit a short time ago. His bees wintered finely and were in splendid condition, and he told us the secret of it was that he gave each hive a feeder full every day, until apple trees were in bloom, and after that, when they would take it, until clover honey came. The feeders he used were of the dimensions of those described in the A B C, holding just about 4 oz., and all were fed outside, at the entrance. As all

had a feed at once there was no chance for quarreling. It is not a very big task to take a pail of syrup, go around to all the hives, and fill each feeder. Remember there are no hives to open, and after the bees have been fed a few days, they will be on hand as promptly every evening for their feed, as your cow or pig.

Well, in our apiary, there are now about 260 colonies. With all these bees, we have not taken off 25 lbs. of honey. Why? Because the demand for queens has been so great; we have had to buy them by the hundreds, after raising all we could possibly raise in our apiary. Besides the queens, as I have said before, we have built up quite an industry by selling young Italians, by the oz., with the queens. Well, now I do not raise honey at all, but raise beautiful bees and queens by feeding grape sugar. I presume you will not any of you complain, will you? It would take a man nearly half a day, to go round and feed 250 colonies, besides the machinery for so many feeders. Why not let these vehement Italians go out in that grove of maple trees a little way from the apiary, and get the feed themselves, as fast as they want it? I will tell you why I prefer grape sugar. Should I attempt to feed honey, or even cane sugar, it would make a perfect uproar; but the grape sugar they care so little for, they will take it and go home as quietly as if it was so much corn meal, which it is virtually. In fact, I have been having some dreams this afternoon of feeding the Indian meal to them directly, without the trouble of sending to the Davenport factory for it. Now, this feeding must be as nice and neat as the rest of the apiary, and I wish to have it so thoroughly systematized, that our boys and girls can carry it all along in as good order as if the bees were working on clover. This plan is already in practice and the feeders all at work are one of the prettiest sights I ever saw in my life. If you wish to see some of the prettiest and yellowest Italians, all from imported mothers, too, that you ever saw, just come and take a look at them. Once more; the grape sugar has so little attraction for them that a great part of them roam the fields, and are constantly found on the borage, sunflowers, mignonnette, Simpson's honey plant, etc., etc.; and the loads of yellow pollen that are streaming in all the time indicate that some of them, at least, have decided in favor of the shorter cut, of getting the corn sugar from the very corn tassels themselves. I do not intend this grape sugar to be stored in the combs, but only to be used for raising young bees, and keeping comb building going moderately. The feeders used are those given on page 264 of last month, and are arranged hexagonally, like the apiary. The bees are as clean and orderly as—the girls who are folding the sheets of this journal in the folding room, this minute. The boards and feeders are clean and neat, and bid fair to keep so indefinitely. It really seems to me as if God was answering my prayers for a way of making bee culture profitable during dry seasons, or during a dearth of honey; viz., by raising bees and queens.

SUNSHINE AND SHADOWS AMONG THE A B C CLASS.

THE queen is doing wonders in producing beautiful young Italians and eggs for queen cells, of which I had a nice lot a few days since.

R. CORSCADEN.

Providence, R. I., July 12, '79.

That is the way they write when every thing succeeds, friend C.; but, O my, do we not get some doleful letters when the queen happens to get killed in introducing. Listen to the following:

Notwithstanding you are so busy, I must bother you some with my complaints. I purchased last winter 3 swarms of black bees. In the spring, I had about one and a half. The one stock gave me a good swarm the first of June, and in about 2 weeks another came out and was lost. The half swarm increased rapidly, and for fear of losing another swarm, I divided them, and now my trouble commences. I got one of your queens and tried for two days to get her in, but without success, the bees killing her before I had time to turn around.

Now what should I do? The bees are without a queen, and weak at that. I did not mind the loss so much as the failure to do what others do. I was busy then, and could not experiment farther. I gave the queenless hive a frame of brood with queen cells, and in two weeks (getting over my hurry somewhat), visited your apiary, and spent about two hours watching your boys handle bees. I concluded that I must have your breed of bees; that is, if I went into the business. So arming myself with one of your smokers and another queen, I felt as though I would "conquer or die." Looking over the frames carefully and cutting out all queen cells, I deposited the cage containing the queen on the frames, covered them up and left them for 24 hours; then I opened the slide and let out one of the stranger bees. It was well received; then another, and so on; all seems lovely. I am on the pinnacle of success finally. Last, but not least, out comes the beautiful Italian queen. She is no sooner seen than she is pounced upon by the savage blacks. I apply the smoke; when they let go, she dodges down between the combs. As soon as possible, I remove 2 frames and find her at the bottom of the hive, in a ball of bees. I rescue her in the agonies of death.

Now, friend Root, I have paid out to your firm for GLEANINGS, A B C book, and bee fixtures, \$7.97 and am not so well off pecuniarily as before. My bees have made no surplus honey, for handling them puts them in an uproar for a day or two. I would like to sell out; I must either sell or get a better race of bees, for I can't stand this much longer. I receive about 100,000 stings every time I go through my four hives.

Now, let me ask you what I wanted to on the start. Will this swarm that is queenless die out? Can they rear a queen unless they have got the cell with the embryo in it? Further, what will you take to send one of your boys down and introduce four queens to my four colonies, any time between now and winter, so that another year they will be all yellow bees? Are not your artificial queens tender? They certainly are not so large as the blacks. IRA BENNETT.

Medina, O., July 13, '79.

I am very sorry for your mishap, friend B., but I am glad you have detailed it so faithfully, as it gives me an idea of the diffi-

culties my A B C class have to contend with. Your queenless swarm will certainly die, if you do not give them brood with which to rear a queen. I do not think the queens we raise are smaller or less hardy than your cross blacks, in the general run. As I have been wanting to try my hand at introducing, on some very cross bees, I will go over and introduce them if you will come after me, asking only for the black queens as my pay for doing the work. I will report success next month.

Juvenile Department.

ANTS.

I HAVE had one swarm of bees come off. I have 9 colonies. My bees seem to be raising lots of young ones. Now, the advice I want is about the ants; what shall I do to keep them out of my hives? The hives are alive with them. I have tried to kill them with my fingers, but it does no good. As I am a boy, please answer me; and when I am a man, and you are a boy commencing to keep bees, I will help you.

WALTER CROSBY.

Appleton City, Mo., June 18, 1879.

I do not think the ants are doing any harm, my young friend; if the bees are strong, they will drive them away as soon as they inconvenience them. If you do not like to see them around the hives, sprinkle powdered borax on the ground, as recommended in the A B C.

A "LECTURE" FOR THE BOYS.

Please lay aside your writing and listen to a much troubled A B C boy. This morning, while walking through the bee-yard, I accidentally noticed two little dun colored flies traversing the entrance of one of the hives, as unconcerned as the bees themselves. The bees took no notice of them, nor they of the bees. I at once decided that it was the moth-fly so much spoken of in GLEANINGS. I don't know what to do; for the bees will not fight them, and I am too afraid of the bees to fight them myself. I have tried to get pa to get an Italian queen, but his excuse is, "We have no express office near". I have told him that Mr. Edwin Thew will send them by mail; but he will not order. I am afraid, if he does not send pretty soon, it will be "too late".

Our bees have not been doing much for the last month, on account of dry weather. They are gathering pollen from corn-tassels pretty briskly now, but are gathering no honey from anything. We (I, by myself) transferred one swarm a few weeks ago; but—they were robbed! We divided the bees around, but—they were killed! I think we need a lecture on something.

Yours &c.,

D. S. BETHUNE.

Snyder, Ark., July 7, 1879.

I guess you are right, my friend, and that the lecture you need is to go slowly and be careful. Never mind the flies, or moth millers; they will do no harm walking in front of the hives. If they enjoy it, let them walk. But when you transfer another colony, you must not let the bees rob. If no honey is coming in, do it in the evening, after the bees have stopped flying, or by moonlight, as I told you in the A B C. Do not let a single bee ever get home with a load of honey he has picked up, and you will never have any robbing. I am afraid you have left honey daubed and scattered around, like boys generally do; my boy, in particular. I gave him a long lecture about it the other day, and gave him a box for cages, sections of honey, bits of comb, and every thing of the kind. Then I had him

get a pine board, and tack on each box. On one board was "Unfilled Sections"; on another, "Section Cages Ready for Queens"; on another, "Combs Ready For the Apiary"; and so on. In about an hour I went out, and the bees were in the honey house having a fine time, in several different corners. I "lectured" some more, and the next time I came round, everything was all right, except one section of honey, standing *on top* of a shipping case. He said he had not time then to raise the cover up to put it *inside*, and afterward he forgot it. The trouble is, it seems almost impossible to impress upon the minds of you boys, the importance of not laying down a bit of honey for an instant, when bees are disposed to rob. Be as careful as you would not to let a span of colts get the lines out of your fingers, until you are sure you are "boss", every time.

LENGTH OF LIFE OF THE DRONE BEE.

I HAVE often wondered why some writer on the "blessed bee" subject has not demonstrated the length of life of the drone, as well as of the queen and worker bee. They put the length of life of the queen at two or three years; of the worker bee at ninety days in the busy season; and still say, "It is not known how long a drone bee can live." Now, if it has not heretofore been known I claim to have made a discovery.

I assert that the length of life of the drone bee is not half that of the worker, or that it does not exceed thirty days. You ask for the evidence. Here it is. During the months of March, April, and May last past, the drones were so often turned out of the hives or killed, that I gave particular attention to their production, by placing drone comb in the centre of the brood nest of several strong colonies. In forming some nuclei, the 1st of June, I found in one of these colonies an entire frame, 11x13 inches, of capped drone cells. I measured it and calculated the number of unhatched drones in said frame to be 5000. This is very near the exact number. The hive had other drone cells besides this, so I took this frame, together with another of hatching worker brood, and formed a nucleus for a young queen. These drones began hatching between the 17th and 20th of June, and such a troop of them as arranged themselves on the frames was almost wonderful. I had an idea that I should have to feed them, and gave them two or three half filled frames of comb and honey. On the 25th of June, every drone had hatched, and the bees began to fill their comb with honey. On June 30th, there were plenty of drones, but the nucleus did not seem particularly overstocked with them.

July 5th, I saw drones flying about the hive plentifully. July 12th, could only find six living drones among the frames. They had perished naturally and without any urging. All are gone—5000 in twenty-three days, from a single colony. There can be no mistake about it. There was only two frames to start with, one of workers and one of drones. The queen commenced to lay on the 26th, and gave work for all her bees, and has already filled five frames with brood. None of her brood has hatched yet, and the bees are so scattered through the hive, as to afford good opportunity to count the drones, if they were there.

S. W. SALSBURY.

Kansas City, Mo., July 12, 1879.

OUR CARTOON FOR AUGUST.



MR. MERRY BANKS' DREAM.

OUR friend, Mr. Merry Banks, after having been very busy engaged during the day with his bees, goes to bed at night with bright visions. As he begins to lose himself in the land of slumbers, visions of large, fine queens that he was unable to find during the day float before his slumbering senses, and, as they stalk majestically across the combs, while the workers pay homage by standing out of the way and bowing their heads to them as they pass, he wonders that he ever had so much trouble in finding them. He even sees them as they flit through the air, and, while he gazes admiringly, wonders that any one should refuse to be a bee keeper.

The scene changes; he is invited to speak at a convention; he waxes eloquent with his theme; and, after a burst of applause from the audience, he winds up by declaring the day not far distant, when our land shall so flow with milk and honey, that even the urchins on the street will go about with a huge dish full, inviting all who will to partake; and that all the enterprising apiarist will have to do, will be to carry his nice shipping cases full of honey to market, on a spring wagon, drawn by a dashing pair of spirited nags, bought with the honey sold, while bees of enlarged dimensions dive into the blossoms of the improved variety of clover that lines the road side, rifling them of their cups full of honey. While—

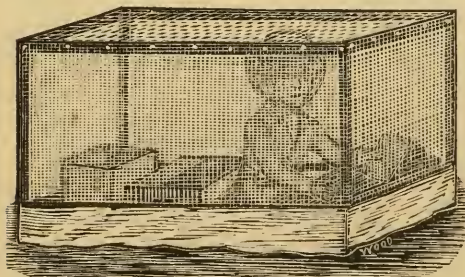
Hark! what is that sound? He rubs his eyes, and finds it is broad day light. Bees there are, it is true; and by the sound, he knows at once they must be robbing. They are even making their way through the

shutters of his bed room window. The urchin of his dream had, in truth, slipped into the honey house the day before, helped himself to the honey, dribbled it along the floor, then scattered it about as he divided it among his mates, and, worst of all, left the door ajar. Alas, alas! thought he, as he nervously pulled on his summer clothing, how true it is, that there *is* but a step between the sublime and the ridiculous, and how different are the stern realities of every day life from the fine speeches sometimes made. The bees about his bed and hovering over his nose were a reality after all, but they were not *queens*.

HOW TO CIRCUMVENT ROBBERS.

AND KEEP ON TRANSFERRING AND RAISING QUEENS ALL THE SAME.

THE basswood season failed with us, about the 20th of July, and left us with something like 250 queen rearing colonies. The bees very soon informed us which colonies would protect their entrance, and which would not; and by giving combs of unsealed larvæ to all that had no laying queens, and combs of hatching bees to all that were short of bees, we soon had every one "holding the fort." Now bees were coming in daily, and bees were going out daily. Queens and ounces of bees were ordered by every mail, and must go by first express, especially if we hoped to hold our customers, and so, even if robbers did incline to dip into the hive like that fellow who is trying to dip into the urchin's dish of honey in the cartoon, business could not be stopped. I instructed the boys to make a wire cloth house, to set over a hive when they wanted to open it, and here it is.



WIRE CLOTH HOUSE, FOR TRANSFERRING, ETC., DURING A SCARCITY OF HONEY.

The house is 6 feet long, $3\frac{1}{2}$ feet wide, and $3\frac{1}{2}$ feet high. The operator is expected to sit on the seat illustrated last month, and a movable shelf is fixed across one end, on which to do his work. a single sheet of painted wire cloth goes right around the building, and overhead.

To prevent bees from getting under the edge, a strip of cloth is tacked on, having a hem on the lower edge, in which is drawn a cheap iron chain. This holds every portion down tight to the ground, even though the surface may be uneven. The whole is so light, that it can easily be moved from hive to hive, or tipped up at any side when the

operator wishes to get out. About 8 yards of wire cloth are needed at an expense of about \$3.00. The wood work well painted and the cloth and chain will cost about a dollar more. When you wish to fasten any colony into their hive without smothering them, just set your house over them, and they are out of the way.

Humbugs & Swindles,

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

I TOOK off my first honey to-day, 55 nice sections. I expect to get 200 more next week. This is the result of taking GLEANINGS and Simplicity hives. I was told to-day that one of Mitchell's agents sued a man for using the Simplicity hive without any right. He lost the suit, because he could not prove that he had any patent on the hive. M. RISEK. Columbus, Ohio, June 30, 1879.

I have heard once before, that, when Mitchell could not think of any other excuse for demanding money of country bee keepers, he claimed to have a patent on the Simplicity hive, but I did not know before that Mitchell or any of his agents had the brazen impudence to commence a suit about it.

Extract, from the *Oxford* (Pa.) *Press*, July 9, 1879.

A PATENT RIGHT SWINDLER GETS HIS DESERTS.

A smooth spoken man, having the appearance of a farmer, drove up to the residence of John Witmoyer, in the upper part of Berks county, several days ago, and wanted Witmoyer to buy a township right for the sale of a patent corn sheller. Witmoyer happened to have been a juror in a case in which a farmer had been swindled by a device similar to this one, so he concluded to draw the man on. He told the agent to prepare the agreement, which being done, was handed to the farmer for his signature. Witmoyer, however, astonished the agent by saying he would just read it, when it was discovered that the agreement was a promissory note for \$300. So John called in his two big sons and together they carried the patent right man to the horse trough in the barnyard, where they baptized him; then they gave him a number of kicks apiece, put the dogs on him, one of which tore off a large patch of his pantaloons, and so cheered him on his way. The agent has quit business in that part of the country.

Would it not be well to serve some of the patent division board men in something the same way? If anything, the man was let off too easily; for his crime was, virtually, highway robbery.

SOME of the friends advertise queens by mail. I hardly know what to advise in the matter. While I feel that the rulings of the P. O. Dept. are needlessly standing in the way of the best interests of a large class of our agricultural community, I dislike to advise disobeying such very positive and decisive orders as that given in this No. At present I cannot consent to send queens by mail, even though it may be done in sealed packages or enclosed in tin boxes, so as to elude the vigilance of the Dept. A queen sent by express in a box so large that she is laying on the way, I think, is worth more, as a rule, than one that has passed the close confinement of the mail bags.

OUR OWN APIARY.

INTRODUCING QUEENS.

JULY 5th, we received a dozen tested queens, and, as we only had orders for a part of them, five were to be introduced. One of the boys asked me if I did not want the job of introducing them, they had had so much trouble in that kind of work. I assented, and took the five and let them out in as many hives, in perhaps less than ten minutes, without any caging, spraying, smoking, or anything of the kind. None of them were molested at all, and one was laying in the afternoon. How did I do it? I simply let them out just as any of you or any one else could have done, equally as well. The secret was in choosing the hives to which to introduce them. I chose full blood and gentle Italians, that had been queenless for a week or more. In fact they were all rearing queen cells. The frames containing the cells, of course, were taken out, and put all in a hive by themselves, and to make a surer thing of it, the brood was also removed, and some of the bees were put entirely on dry, empty combs, that they might feel as nearly as possible like those we put in the section box cages which I told you about last month. Of course, its being in the height of the honey season had something to do with the ready reception of the queens. The result was, that I had the use of my 5 queens almost at once, and the bees went right off to the fields, gathering honey to fill their empty combs. I would advise more experiments in taking away all the combs, and obliging the colony to cluster on strange combs when they are to have a new queen. There is certainly a very great difference between pure Italians and hybrids, so far as accepting strange queens is concerned. One more point; I did not feel that I was running any risk in letting out those queens, for I expected to keep such close watch of them, that they could not be harmed. We have lately had some imported queens caged nearly a week in trying to introduce them, and had one killed even then. The next lot we receive, I shall let out at once, as I did these. If one colony will not accept a queen, I will try another.

ECONOMY IN MATURING QUEEN CELLS.

One point I touched on, in regard to queen cells. You can take all the queen cells you have in your apiary and put them in one hive, if you wish. Take all the combs containing cells, bees and all, mark the date when the cells will hatch on each top bar, get a hive large enough—two stories or more, and you can take care of them with less trouble than if they are in a great many, different hives.

SIMPSON'S HONEY PLANT.

In the spring I purchased about 200 plants of friend Simpson, and planted them on our honey farm, setting them about as far apart as corn. Somewhat to my surprise, they are now, July 8th, commencing to bloom; and, sure enough, every little pitcher-shaped blossom has a shining drop of nectar in it. This nectar is very fair honey, although it

has a sort of weedy flavor, which, I presume, the bees will readily remove. The amount of honey is what astonishes me. One of these little flowers contains, I should say, as much as a hundred basswood blossoms. At present, I know of no other plant that promises so well for cultivation for honey alone. A single plant in the garden, for curiosity, if nothing more, I think, would be well worth the trouble to every bee keeper.

INTRODUCING AGAIN.

11th.—Since the successful introduction of the 5 queens, it has been remarked that I could not do the same thing with cross hybrids. I told the boys to show me the cross-stocked stock of hybrids on the grounds. I took an empty hive containing four combs, and desired them to carry the hybrid colony to a new stand, which was done by simply lifting the Simplicity hive off from the bottom board, and to put my hive with empty combs in its place. The bees were so cross while this was being done, that it was with difficulty I could work among them. Of course, they ran in and out of the hive, making a terrible ado, when they found their own, well filled combs and brood all gone, and thus I left them an hour. At the end of that time, the greater part of them were out in the air, and on the outside of the hive. I placed a laying queen on the empty combs, and, as if by magic, the mournful note gave place to a joyous hum. All parties, both in the hive and in the air, gathered about the queen as a new swarm will gather about her on a bush. Was she harmed? To be sure not; I closed the hive, satisfied, and the next morning found her laying. The secret consisted in making them feel that they were homeless orphans and lost, unless they could get a queen, or the means of rearing one, and in a mood to take up with anything that offered.

This is not all; the other part of the colony that was carried away was given a queen in the same way; and they, too, accepted her, and she had a comb pretty well filled with eggs next morning. So, you see how much time was gained over the old fashioned formula of waiting 48 hours, etc. A very important point is to be here noted; this hive had been queenless about a week, and had, at the time, a lot of sealed queen cells, which, of course, were carried to another hive when the queen was released; it was also done during basswood bloom. How shall we get hives that have been a week queenless, without great loss of time? Let them rear a lot of cells, and when the cells are nearly ready to take out carry them to some other hive, or put them in the lamp nursery.

THE HONEY FARM.

12th.—It is really fun, to see the Italians take a row of the Simpson Honey Plant and hover over every bud, to see if there is not a cupful of honey for them. The little flower is visited so often, however, that the honey has no time to collect, and if we wish to see one full, we shall have to protect it with lace, on the plan of our friend Mollie. The prettiest honey plant on the grounds is the Italian or Scarlet Clover; and, to my astonishment, beautiful clover heads of the size,

shape, and color of large strawberries, have already made their appearance, although the seed was only sown in May. This is quite an important matter, as ordinary clovers require two seasons. Lucerne is also in bloom, sown at the same time. These queer plants that seem to bridge over the space between the clover family and the pea family, as they stand side by side in their respective beds, almost make one feel solemn. A little further along, are some rows of vetches. These are peas undeniably; for they have not only tendrils, but pods also. Yet, as if to help you not to decide too hastily, near by stands the Alfalfa which has such a combination of the pea and clover, not only in blossoms but leaves also, that you are forced to think them all country cousins, that have been unconsciously brought from different nations of the earth, perhaps after the lapse of ages, back again side by side. O, Dame Nature! how little do we know of ways and means by which you have brought things around as they are! The bees evidently recognize the part they have to play in the drama, for a huge bumble bee was just now making himself at home on a head of the scarlet clover.

WE MUST HAVE THAT HONEY.

THE honey of the fragrant, omnipresent, red clover fields, of course. We *must* have it. It is immense in quantity. We might almost doubt whether all other sources combined furnish as much nectar as is locked up in plain sight, but quite out of our reach in the red clover. It is excellent in quality; no one who ever robbed a bumble bee's nest need have any doubt of that. The long and the short of it is, we must have it. Old Cato used to end all his speeches, no matter what the subject of the speech was, with "Carthage must be destroyed." Let's keep on reiterating, "We must have that honey," until we get it.

A few efforts have been made already. Some ingenious chap brought out a cross between the red clover and the white under the name of Alsike clover. Farmers were to drop red clover and sow this; and all lovers of honey were to be happy. No go. Some fields of Alsike may continue to be sown, but it can never displace the old style clover. Visions of an improved bee, with a longer snout to reach that honey, have floated round the heads of some apiarians. You, for one, respected teacher of the class, have given tongue to aspirations of this sort. Comb was to be made gradually bigger and bigger, by enlarging the cells, and the bee was to grow big enough to fill the cells, &c. &c. Alas! the June No. shows, in your reply to the California man who has this idea on the brain, that you have soured on the scheme! The writer has no doubt that the honey bee could be enlarged in size—providing, of course, that one went at the work in the right way—but it is to be feared that we should need to more than double the length of our bee's proboscis before we could reach our object in that way. To do this, we might have to double the other dimensions of the bee also. All solids have three dimensions, and increase by cubes. Our clover bee would thus be 1x2x2x2, equal to 8, times as bulky as the common bee—a bumble bee outright. The weight of such bees might be expected to break down the new tender comb while being built. They would be too heavy to hang together in festoons or masses. Thin honey would

not stay in cells of such a size. So much food would be required that the bees would eat their own heads off, so to speak. In short, the prospect of getting that honey by means of an improved bee is not bright. Some increase in the size of the honey bee may, or may not, be profitable; but any great increase would almost certainly be a loss.

Were it desirable that sheep should feed on acorns and pick them from the trees, we should find it well nigh impossible to breed a sheep large enough to do such tall pasturing. If, by any chance, we succeeded in getting sheep tall enough to reach the acorns we should certainly fail financially, in the business of producing wool, at market rates, from a herd of such mastodons. The only practicable way would be to *dwarf the oak*, and so bring the acorns down within the reach of ordinary sheep. To get at the gist of the matter, without any further verbiage, we may reasonably hope to get that honey by modifying the red clover. Both animals and plants are plastic, and can be varied to almost any reasonable degree. We can doubtless produce a variety of the clover that shall retain the identity of the plant, and all the good farm qualities of the old familiar clover, and yet expose its honey in a short tubed flower. The lucky A B C boy who accomplishes this must be allowed to sell *quite small* packages of seed, for 25c. each, for a spell. Next, the heavy chaps who raise honey by the ton must club together and establish a clover seed plantation. Next, the farmers within a mile of the apiaries must be furnished with the improved seed at bare, absolute cost, and, behold! the sweet task is accomplished, and we have that honey.

Working for this object need not be expensive, or make very great demands upon one's time. Almost any one who can have the use of a little patch of ground, or even space to put a dozen flower-pots, may try for the prize. Those flighty individuals who usually drop things after going a little way with them might as well not begin, for it will be a work of years. I will try and be one to do some practical work in this direction; let us have a hundred others engaged.

As a careful reconnaissance is no mean step towards carrying a difficult position, we proceed to examine a clover head. Each tiny flower of the head has a tube about 42 hundredths of an inch in length. The length varies somewhat on different plants; some will be 44 hundredths or longer, some only 38, or even less, the extreme range being from 30 to 50. We must select plants with short tubes, plant their seeds, select again from the new crop, and so on, working shorter and shorter as fast as we can. Some of us must perform the delicate operation of filling a lot of these tubes with bright colored syrup, and letting the bees take out all they can of it. Then, by careful measurement, we can tell how many hundredths of an inch a bee can draw honey; and thus we shall know how far off we are from our wished for clover. Each full sized clover head has from 90 to 200 separate flowers or tubes. It will probably be to our interest to encourage heads with few flowers, rather than those with many. It is likely that the tubes grow longer than they otherwise would by mutual crowding, just as saplings in the forest do; and, to make them shorter, we must make them thinner. Some heads are flattish, some round, and some elongated. Elongation favors the thinning out process, and should be encouraged, probably, and very long heads with 160 flowers are better than flat ones with 100. A very decided differ-

ence in the diameter of the tubes will be found; and we may imagine that the large tubes will favor our pursuit the most. The white clover tube, with its calyx, is mounted on a little stalk. In the red clover, the calyx sits directly on the stem of the plant, without any footstalk. If we could tease it into developing a footstalk it would be all in our line. Different plants differ greatly as to the amount of honey in their tubes. Of course, we must reject the empty ones. It is possible that we shall find it easier to produce a plant that will fill its tubes full of honey, than to produce one with tubes so short that a bee can reach the bottom. Last of all, we must not forget to improve a little the general qualities of the plant, in order that it may be recommended as better than the old style of clover which we wish it to displace. Undue slenderness and disposition to lodge down should be especially guarded against, as well as feebleness and dwarfishness of growth.

Apparently, the curious arrangement of stamens and pistils in the clover is to facilitate cross-fertilization, and thus give more vigor to the plant than could be had by fertilizing every germ from its own stamens. The pollen is so locked up that it is said no seed can be produced at all, unless insects poke into the tube. The abundant flow of choice honey is to induce the insects to come. The closely massed head, with floral bayonets pointing every way, is to keep insects from getting at the base of the tube, where they could bite through and defeat the whole scheme. We would do well to make a note of these things, and avoid, as much as we can, running athwart nature's purposes. We need not, however, entirely despair, should our pursuit lead us unavoidably across the track of some definite natural plan; longer patience and harder work will be called for, that is all. There seems to be a definite purpose in the construction of the clover head, to circumvent the honey-bee and encourage the visits of the bumble-bee. The utility of this plan, it is a little difficult to see. Probably the hive bee, in his thrifty neatness, brushes up the pollen so clean and packs it away so carefully that few grains are actually transported in such a way as to cause cross fertilization; while the bumble-bee, great, greedy, lumbering fellow, kicks the pollen around carelessly, besprinkles his trousers with it, and dusts it off wherever he goes. In my observations, I have seen, at quite close range, the great carpenter-bee at work on clover. He doesn't put his proboscis into the tubes at all, but just punches down between the tubes. Unless, perchance, he was searching for the little insects which abound in clover heads, it is plain that he gets the sweet by perforating the tubes—boring for honey, in fact. I suppose our domestic bees are not strong enough to carry on this trick to advantage, even if they could learn it.

Plants differ greatly in their variability. Some, like the wheat plant, seem to reproduce themselves almost precisely. Others, like the apple and potato, are so variable that almost every seedling is a distinct variety, easily distinguishable from all others of its kind. We shall not, I imagine, find the clover in this latter, exceedingly accommodating class. On the other hand, we may hope to find it more yielding than wheat and rye and asparagus and caraway, and a large assortment of plants of little variability. Even these stubborn plants give rise, in the course of time, to a wide range of varieties. Plants which are quite fixed in their character can often be made

to take on a habit of variation. The wild strawberry and raspberry seem to have but very little variability; but those which man has manipulated thirty or forty years, with the intent to get improved varieties, are quite variable. However slow to change clover may seem at first, we may hope to set it to sporting in the course of time, by subjecting it to special treatment and unusual conditions. Something can, at times, be done in the way of getting on nature's blind side; for example, corn is a plant of only moderate variability; nevertheless a great many varieties were produced in the ordinary course of reproduction and selection. By and by, it was discovered that the little kernels that sometimes grow on the brush of the corn would produce new varieties almost as freely as apple seeds. We must keep a sharp look out, and take advantage of any such short cut as we may discover. It is not impossible that some of our clovers may develop an axillary flower or two, which will give us a lift by furnishing more variable seeds. We should also hold ourselves ready to pounce upon anything unusual and queer in the clover line, even if not to our immediate purpose. If a habit of sporting and variation can be set up, the variations we desire will be pretty sure to come sooner or later.

Bodley, O.

E. E. HASTY.

ITALIANS AND BLACKS.

I FIND under the above heading, in the July No., page 256, a statement made by A. J. Fisher, that we have some as good reports in honey from black bees as from Italians; and he cited as proof that Mr. Quinby's best yield of extracted honey (361 lbs.) was from a black colony. Had he forgotten that, at about the same time, P. H. Elwood reported from a colony of Italians a yield of 585 lbs. in one season? We also, in 1877, obtained from an Italian colony 566 lbs. of extracted honey. Again, he says, they may do for extracted honey, but, for box honey, the Italians are "far inferior to the blacks." In 1877, we obtained from our apiary the average yield of 158 lbs. of box honey, and 309 lbs. from one colony. Can Mr. Fisher quote any such yield from blacks?

Again; we find both by Mr. Fisher and the editor that black bees make a better quality and finer appearing honey. In this, we think them both mistaken. Whose honey is it that stands the highest in N. Y. markets? Is it not Isham's, Clark's, Elwood's, etc., who all keep only Italian bees?

We also find that it was honey made by black bees that took the Thurber gold medal. To this, I reply that the whole cargo of honey that was shipped by us was made by Italian and hybrid bees. The little cherry crate which drew the gold medal and has had a viewing by the public for nearly two years, drawing prizes in New York, on board the ship to the old world, and at numerous cities in the old country, and is now on exhibition at the great honey show in London, was made by Italian bees. I do not praise the Italians in view of selling queens and colonies, for my only business is the production of honey for market. I praise them for their real merit—their industry and perseverance in accumulating stores, especially in a time when but little honey is to be obtained. In conclusion, I would say, I would as quickly think of going back to box hives and the brimstone pit, as to black bees. G. M. DOOLITTLE.

Borodino, N. Y., July 11, '79.

Not better quality of honey, friend D., but the whitest comb honey; is not that what I say on page 256? even this whiteness is only in appearance, because the cells are not filled full.

BEE BOTANY AND ENTOMOLOGY.

THE BUMBLE BEE AND LAPHRIA THORACICA.

PROF. COOK:—I mail you to-day two insects found preying on bees. The larger was sent me by a friend, who states that he finds them inside his hives. I pronounced it a bumble bee; but, as others do not agree, I send it to you. The smaller one I just caught with a bee in his clutches. I think they may both belong to the family *Asilidae*, but am not certain. F. L. WRIGHT.

Plainfield, Mich., June 23, 1879.

The larger insect is a bumble-bee, which, having been caught in the hive, was stripped of its hair by the bees, and left not half but fully dead. The bee hive is no uncommon trap for unthinking bumble-bees. The latter enters the hive while the apiarist is working with the bees, and soon finds that he has run into the jaws of death.

The other insect is the *Laphria thoracica* of Fabricius, which is mentioned on page 300 of the 4th edition of my "Manual." It is nearly one inch long, and so mimics the bumble-bee that few would distinguish them apart. But examination, even by the novice in entomological science, will soon note the mistake, as two wings instead of four, with other marked differences, are revealed.

The *L. thoracica* is usually black, except the back of the thorax. The specimen sent has a yellow band embracing three segments at the base of the abdomen. This is a variety, and has been mentioned by Osten Sacken, our greatest authority on Dipterous insects. As stated in the "Manual," this species is common north. This is the first time, however, that we learn of its destroying bees in the northern states. I have long known it as a very rapacious insect. A. J. COOK.

Lansing, Mich., June 24, 1879.

Please tell me the names of 2 plants, which I send you by this mail. No. 1 is a vine and runs on fences and to the tops of small trees. No. 2 grows about two feet high in swamps and on the margin of shaded streams. Bees are working on both now. I have now nearly a complete list of Louisiana honey plants. J. D. BEDELL.

Franklin, St. Mary Parish, La., May 11, 1879.

Plant, No. 1, was so much injured in transit to us, that it could not be identified. No. 2 belongs to the order, *Myricaceae*, and the species *Myrica cerifera*. The common name is candleberry myrtle, or bayberry.

THE APATHUS.

I send you a large bee. Examine it and forward to Prof. Cook. This villain entered a hive and killed quite a number of bees, and was finally killed by them. How it did it, I can't say. They are very destructive to the bees. Give his photo in GLEANINGS, if you please. J. F. MICHAEL.

German, O., June 19, 1879.

MR. ROOT:—I send an insect resembling a bee. It is black, has a sting, can bite also. What is it? Raeland, La. CHAS. S. LARKIN.

Reply by Prof. Cook to both the above.

The insect from Larkin, Louisiana, is a species of *Apathus* (see "Manual of the Apiary," p. 37). The body is black, the abdomen short, much like the same in the toisor-bee, mentioned on p. 36 of "Manual." The posterior legs have no pollen baskets. The general appearance is that of a bumble-bee, but the structure of the mouth parts is quite different. I have never before heard of one of these in a hive, so it is an interesting case. Whether it sought to pilfer a little honey, *a la* the bumble bees, or was stealing in to lay its eggs, and have its young cared for by others' labor, I can not say. Let our Louisiana apiarists watch to see if other than bee-larvæ are reared in the hives.

Strange to say, the bee from J. F. Michael, which is very like a common bumble-bee in form, is a relation of the one mentioned above, as shown by its triangular jaws, which have two teeth, and its convex posterior tibia. Very likely, they are attacked by the bees, and wishing to die game, kill several bees before they are dispatched. I do not believe they will do much harm; they will meet too warm a reception. But, should they become troublesome,

we can easily preclude them from entering the hives by narrowing the entrance. A. J. COOK.

THE MILK WEED BEE-TRAP.

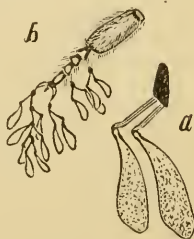
I send you to-day a package containing a honey bee, moth, and fly, that have been on a milkweed and become disabled by something that adheres to the foot. J. F. LISTON.

Marengo, Ill., July 4, 1879.

The insects sent by Mr. Liston were two bees, one noctuid moth, and one blue bottle fly, each of which had a pair of *Asclepias* pollen dust saddle bags on its feet. All of these insects are lovers of sweet, and so visit flowers. The pollen masses of the milkweed adhere to insect visitors, and are so carried from the parent flower, to fructify other flowers. For figures of these pollen masses see A B C, p. 129; or "Manual of the Apiary," p. 233. I do not think that the mortality to bees, caused by these little burdens, is so great as to make the plants undesirable near our apiaries, especially, as the flowers furnish much beautiful honey. We have many of these plants near our apiary, and I would willingly have more.

Mr. Editor, you may well append your excellent figure, A B C, p. 129, so that all may see this strange arrangement of Nature's to effect cross fertilization. A. J. COOK.

Lansing, Mich., July 8, 1879.



POLLEN OF THE MILKWEED, ATTACHED TO A BEE'S FOOT.

OUR CARTOONS, QUEENS STRAYING AWAY FROM HOME, ETC.

HAVING just concluded quite a round of transferring, I am of the opinion that you will not be able to advertise many bees for sale at a dollar per quart, from this part of Mich., as I find but about one third of the swarms strong enough to divide, while quite a large part have only about a quart of bees in a hive. I have 17 left, out of 22; two were sold, giving a loss of three during the winter, which I think is pretty good, considering my ignorance.

By the way, the May No. of GLEANINGS has come to hand, and I had a hearty laugh at the cartoon. I thought I recognized his model, but was not certain, so I examined the back Nos. of GLEANINGS, and, sure enough, in No. 11, Vol. 6, page 373, there he stands, bat in hand, in all his glory, with every thing needful, if his heart is right, to make a man happy. Then when I looked back into the May No., didn't I laugh though? I thought, surely circumstances alter cases; yes, and faces too. But never mind, Novice, we will all turn in and help you up, so that you need not go west. Kansas is too far, and not a good place for bees.

Well now, my queens are as much demoralized as Novice's, or any other man's. I don't know where they are half the time. About three weeks ago, my Italian was missing, and I felt as if I would have to start for Kansas, or another queen, and now the young Italian bees are hatching out of a hive that stood just twelve feet from the one she was in, and I have two nice young queens hatched from the cells which I found in her hive. I have three other queens that have left and entered some other hive, while their bees remained and built cells. I lost, in that way, one of the Italian queens I bought of you.

But I sat down to write for a cold blast smoker, and see what a lot of nonsense I have written; but send along the smoker and I will try and do better next time, though I would like to know what the mischief has got into the queens, to act so un lady like. WM. L. KING.

Benton Harbor, Mich., May 30, 1879.

WAX. Whether bees make honey or simply collect it, may be a subject of discussion, but we believe there is no question in regard to wax, for bees do assuredly make it. If you have your doubts, however, just watch them closely during the height of the honey harvest, or what is perhaps better, feed a colony heavily on sugar syrup for about 3 days during warm weather. At the end of the second or third day, by looking closely, you will see little pearly disks of wax, somewhat resembling fish scales, protruding from between the rings on the under side of the body of the bee, and, if you examine with a microscope, you will find these little wax cakes of rare beauty. Sometimes, especially when the bees are being fed heavily, these wax scales will fall down on the bottom board and may be scraped up in considerable quantities, seeming for some reason to have been unwanted. During the seasons of the natural secretion of the wax, if the colony has a hive affording plenty of room for surplus, we believe these wax scales are seldom wasted. At the swarming time, there seems to be an unusual number of bees provided with these wax scales; for, if they have remained clustered on a limb for only a few minutes, bits of wax are found attached, as if they were going to start comb. When they are domiciled in their new hive, comes the time, if the hive pleases them, for them to show their astonishing skill and dexterity in fabricating the honey comb.

In the attempts that have been made to supply material for artificial comb, we have had a view of the wondrous skill with which nature supplies just what is needed for the safety and well being of her creatures. Many substances seem, at first view, to have all the requirements needed, but when we discover that the material must be sufficiently soft to be readily molded at the ordinary temperature of the hive, and yet be in no danger of melting down during the intense heat of midsummer, we see that perhaps no other material than just the wax they secrete can come anywhere near answering the purpose. Wax melts at about 145° in its natural yellow state, but becomes so soft that it may be molded by pressure at a temperature of about 100° or less. When this yellow wax is exposed to the sun and moisture in the shape of thin ribbons, it gradually loses its yellow color, and becomes white. Its melting point is also raised by this change about 12°, yet it is still readily worked into comb if given to the bees during hot weather, and when raised up into cells, it has a

most beautiful appearance of snowy whiteness. This, however, is soon soiled and colored, if left in the hive, for neat as bees are said to be, they have a habit of running over the clean white combs with muddy or at least dirty feet. With old and dark combs this might be unnoticed, but in a hive furnished with combs made from bleached foundations, it becomes very apparent.

Like other folks, the bees seem more careful of their best rooms, for the surplus honey boxes are kept much cleaner than the ordinary working room, or brood apartment, though this may not be intentional after all, for it is principally the young bees that have never been out in the fields, that work at comb-building and in the boxes. On this account, clean, yellow wax, when used for foundations, will give very nearly as fine box honey when filled and capped over, as does the bleached. As the latter is considerably harder than the yellow, it is not worked into comb as rapidly. When the bees are needing room they will frequently raise a whole sheet of yellow fdn. into very fair comb in a single night, while it would require nearly double the time perhaps to do the same with the bleached.

Until somebody shall discover a use for propolis, we shall have to consider the products of the apiary but two in number, wax and honey. It is true, bees and queens are now quite marketable commodities, but as they are bought only for the wax and honey they may produce, they can hardly be considered as legitimate apiarian products.

The manner of getting the honey into a marketable shape has been very fully discussed, and great improvement has been made, in this particular, within the past few years; but the operation of rendering the combs into clean, nice wax, so as to be attractive to the eye of purchasers, has been very little improved since the time when our grandmothers used to boil them in a large kettle, and squeeze the wax from the melted mass through a cloth or bag, much in the way lard is expressed. Our engraving given shows the only implement offered for sale at present. It is called the Swiss wax extractor; and, if I am correct, was introduced into our country about the year 1869, by Mr. A. Gray, of Reily, O. The following report in regard to it, furnished by Adam Grimm, of Jefferson, Wis., I extract from the *American Bee Journal*, of April, 1871.

WAX EXTRACTOR.

It is only a few years since we got the melex-

tractor, and we have by its aid succeeded in doubling and even trebling our yield of honey. And now, again, our brethren across the ocean have sent us an apparatus that is of great value to the bee-keeper. It is what I venture to name the wax extractor, an apparatus devised by Prof. Gerster, of Berne, in Switzerland, for the purpose of extracting wax from the combs. While all bee-keepers agree, that all nice, not too old, comb should be saved, it will also be conceded that in an apiary of some size and age, an amount of comb will continually accumulate that is only good for rendering into wax. A bee-keeper whose main object in keeping bees is profit will therefore need an apparatus for rendering this wax, whenever he gets a supply of combs no longer serviceable in the hives; and it becomes of great importance that the wax should be extracted before the moths get hold of it, store it with eggs, and a horde of troublesome and destructive millers are bred for future annoyance. An apparatus should be had, too, by which all the wax that can possibly be got out of very old combs can be secured; of a quality that will command the highest market price.

Such an apparatus we get in the one exhibited at the Indianapolis Convention by my friend, A. Gray, and which was handed over to me to be tested. My wife, who usually has to do a large share of the work connected with the straining of wax, and has often complained, in former days, of having her kitchen floor, stove, kettles, and pans bedaubed with wax, is delighted with this new invention. She can now with ease strain all the wax, without the aid of any other person, and without being hindered thereby in her other work. In cold weather, she says, she will not need an extra stick of wood; but the greatest point of superiority is the utter impossibility of the contents of the vessel boiling over, a feature alone important enough to assure the adoption of this mode of rendering wax. How often in former days, from momentary inattention, did we find the boiling liquid flowing over the stove and down to the floor, a misadventure to which we are not here exposed.

The wax extracted by this apparatus is of the brightest yellow color I have ever seen, even when it is extracted from very old dark combs. It is free from all resinous matter, and will doubtless bring the highest price in the market. I am satisfied, too, that the refuse is as clear of wax as we ever get it by any other process, if tried till it stops running. There is but one drawback connected with it. The women say they do not get through with the extracting as speedily as when we used the cider-press, by means of which three men could render 100 lbs. per day. When very old combs are to be rendered, not over 20 lbs. can be extracted in one day. But as the time when bees were brimstoned and all their combs rendered into wax is now nearly over, and the chances for getting large quantities of wax are thus gone or going by, I cheerfully recommend the wax extractor exhibited at the Indianapolis Convention by Mr. Gray, as the next best thing to the mel extractor.

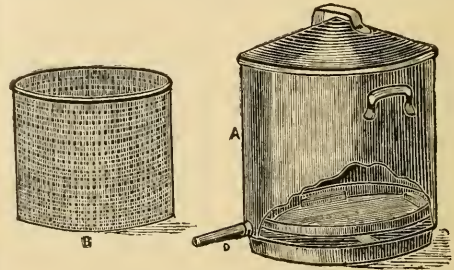
A. GRIMM.

Jefferson, Wis.

Friend Grimm has given pretty faithfully, in his article, the good and bad points of the machine.

The basket, B, is made of perforated tin, and it is into this that the pieces of comb,

cappings, etc., are to be put, and allowed to drain into a pan or some convenient vessel. It is true, you can put them into the extractor, honey and all, and the spout, D, will deliver both wax and honey into the



THE GERSTER WAX EXTRACTOR.

pan or other vessel set to catch it, and when the wax is cold, it may be lifted from the honey below, in a solid cake; but the honey is then dark, and only fit for vinegar, or for feeding bees. Whereas, if drained before being subjected to heat, we get the very best and nicest liquid honey, especially, if it is cappings that are to be rendered; because the honey that adheres to the cappings, is always that which has been sealed up. When the basket, B, is filled with drained cappings, or bits of comb, the cover of A is to be removed, and the basket placed inside, resting on the fixed, shallow pan, shown where the side is cut away. This pan has three pieces fixed near its inside rim (only two of which are visible), to support the basket a little distance from the bottom, and the spout, D, is put into this shallow dish, so as to take all the wax as it falls from the perforated basket above. Now to set the machine working, we have only to supply steam around the basket. We do this, by setting it over a pan or kettle of boiling water, or what is better, a copper bottomed steam generator, often sold with the apparatus. The latter utensil will do very well to catch the drippings of the honey, if a cork is fitted tightly in the tube, D. I would advise you to keep the cover on and this tube corked at all times, if you do not wish robber bees to learn that the machine is almost always a nice place for their depredations. If you do this, you can keep it in the apiary, and throw every bit of comb into it, as soon as found.

If you will go back to Grimm's description, you will see that he calls the machine slow, and says that his wife could not well get out more than 20 lbs. a day. I think I should put it at 50 lbs. or even more, but it is not as rapid as the cider press he speaks

of. Mr. W. W. Cary, of Colerain, Mass., sends us the following description of a plan similar to the cider press, which, I think, might prove of much value, if a large quantity of wax is to be got out, as is often the case where many stocks are to be transferred.

Mr. A. I. Root:—Below you will find a description of Cary's wax press. I call it Cary's, because I have never seen or heard of any thing like it. The idea suggested itself to me, from the way in which I press my cider, in burlap and racks, just as in the wax press.

CARY'S WAX PRESS.

Make a boiler of good heavy tin, 18 in. square, by 13 in. high, inside measure. Solder stout handles on two of the sides, and put a spout on one of the other sides, about 4 inches from the top. The spout consists of a tunnel, 3 in. in diameter at the top and 1 in. at the small end, and about 3 in. long, flattened at the large end so as to make it oval shaped. This is for running off the wax, and the mouth of it should be 3 or 4 in. wide by 1 high on the inside of the boiler. Now cut out a hole on one side of the boiler and solder on the spout, which will need a brace to hold it steady. Perhaps one of your molasses gates for extractors would be a good thing soldered to this spout; we use a cork however.

Now make 6 racks of pine strips, $\frac{1}{2}$ inch wide, by $\frac{3}{8}$ thick. The slats should be planed on all sides. Cut them $17\frac{1}{2}$ in. long, and take 2 strips $\frac{3}{8}$ thick by 1 in. wide and $17\frac{1}{2}$ in. long, and nail the other strips on crosswise, leaving $\frac{1}{8}$ in. plump between them. Next, make a box $15\frac{1}{2} \times 15\frac{1}{2}$, without top or bottom, and make it of $\frac{1}{2}$ inch boards, 3 inches wide. This is what cider-makers call a form or hoop, and is used for laying up the cheese. Now get burlap, such as the factories use for baling their cloth. Cut it into pieces, 28 or 30 in. square. Five of these is enough, as 5 layers will fill the boiler. Now take the old comb and pound it up fine, lay down a rack, put on the form, spread on a burlap, and fill up with the comb; then double in the sides, raise all from the form, and place in the boiler. Fill 5 racks in this way, and put the 6th on top, and a board for a follower on top of this, with a block 6 or 8 in. square which should be fastened to the follower. Perhaps all this will make the boiler more than full, but it will soon settle down when it comes to a boil. A better way is to put the boiler on the stove with 2 pails of water in it, before you commence. This saves time in heating, and the layers can be lowered in with hooks made of wire.

As soon as it has boiled 15 or 20 minutes, it is ready to press, which I do with a small jack screw. You need a small frame, of course, to press in; this can be made with a screw in the upper beam, if desired, but the jack screw does just as well. Now when your wax has boiled enough, take the boiler from the stove, place it under the press, and turn down your screw, and you will soon find the wax on top of the water. Proceed to draw it off by the spout. You will need a painful or two of hot water to fill up with as the wax runs off. The wax should be all removed before the screw is loosened up, as it will stick to the racks and burlap. Skim the wax off with a paddle made of thin board or tin. If the screw is loosened once or twice, and the water allowed to soften up the pumice, it will get it out cleaner.

You need not be more than 15 or 20 minutes in pressing out a cheese, after it is boiled. A press of the size I have described will get out from 10 to 20 lbs. to a pressing, of as nice wax as you ever saw. If you have a good stove to heat on, you need not be more than an hour, or $1\frac{1}{2}$ hours to a pressing, which gives a capacity of from 75 to 150 lbs. per day, more than 10 times the capacity of the steamer process; and again, it gets the wax out much cleaner. If you do not believe this, run some through the steamer, and then put it through a press of this kind. We had the bottom of a bee hive full of pumice which had been through the steamer, and all the wax had been got out that we could get out by that process; then we put it through the press and got out 10 lbs. more. I tried the steamer for 3 or 4 weeks, and became disgusted with it; it worked so slow. I got out more wax the first day after I made the press than I could in 10 days with the steamer.

Now if you want to make a press after this pattern, you are at perfect liberty to do so, as far as I am concerned. The boiler and racks will not cost over \$3.00.

WM. W. CARY.

Colerain, Mass., 1878.

We are much obliged to friend Cary, and I have no doubt that his press will bring out much more wax than the wax extractor does. The plan we have adopted is something similar, but we do not use a press.

OUR OWN WAY OF RENDERING WAX.

Get an ordinary wash boiler that sinks into the fire place of the stove. Put some strips of wood across, to keep the bags of wax from resting on the bottom and burning. These strips are to be of such length that their ends rest on the ledge of the bottom part of the boiler. A frame similar to that mentioned by Mr. Cary would be very convenient; we have been using one made of wire cloth, but it is hardly stiff enough. Now, have some bags made of coarse strainer cloth, such as is known in the dairy regions as cheese cloth. These should be about the size of grain bags, but not as long. Squeeze your wax into balls in the hands, getting it into as small a compass as may be, and put it in the bags. Have bags enough to contain all the wax. These bags cost very little, as the cloth is only 8c. per yard. When you have as many packed into your boiler as you can get in, while the water is boiling, put on a board, with a heavy piece of iron on it. When the wax is all pressed out of the bags, the iron should be beneath the surface of the liquid; if it is not, add more water, or make the weight sink deeper. The wax, of course, is found swimming on the surface, and may be dipped off, or, if much is to be worked in this way, it will pay to have a spout or gate, as suggested by friend Cary. It is so difficult to clean the bags from the gum and propolis always

found with old black combs, that I think I should throw them away, and use new ones each time. The more compactly the wax is put into the bags, the less number of bags will be needed.

Where one has cappings from the extractor, they should not be put with old dark combs, but worked by themselves, for they are almost pure wax. I have seen cappings from new white combs produce wax so nearly white that it would readily sell for bleached wax.

The wax of commerce, when it is bought in quantities, is composed of cakes of all sizes, and of all colors from nearly white to nearly black, the intermediate shades comprising almost all the colors of the rainbow. Where it contains much refuse, it can be improved by putting it through either of the presses described above, and, in fact, almost any wax can be made cleaner and brighter by being put through the extractor two or three times. It has been our practice, in using it for fdn., to select the cleanest and nicest cakes for the thin fdn., to be used in the honey boxes, and the darker for the brood fdn., for the latter, I think, is less liable to sag and stretch than the very light yellow. Wax, as it comes from the hives, varies greatly in hardness. Some specimens are so soft that it seems as if they could not stand the weight of the bees at all, when made into sheets of fdn., while others are so hard that it is difficult to roll them at ordinary temperatures. If I am correct, the soft wax can often be worked into comb better than the hard. This is because it does not continue to soften, in the same proportion, as the temperature is raised. As an illustration, take paraffine. It is too hard to be worked ordinarily, but if warmed to the right degree, it makes beautiful looking fdn. If given to the bees during moderate spring weather, it is worked out into beautiful comb, and filled with honey; but when the extreme heat of midsummer comes, these beautiful looking combs, with their precious load of sweets, will soften and fall down into a heap. This fact I learned by experience that cost me a hundred dollars or more. The admixture of the least particle of paraffine is sure to give the wax a tendency to stretch and sag, and, on this account, I would not advise it; for it is a serious matter to send out fdn. that may endanger the life of a colony, by breaking down when heavily filled with honey. I have been told that, with wires stretched at frequent inter-

vals, say every inch through the frame, it can be used without danger; and, as the bees work it out into combs faster than I ever saw them work natural wax, it may be practicable to use it in that way, after all, when mixed with a sufficient quantity of wax to make a sure thing of the side walls. After a comb has been once used for brood, the cocoons left give it sufficient strength and firmness to be ever afterward safe.

CLEANING WAX FROM UTENSILS.

Perhaps the readiest means is to immerse them in boiling water until all the wax is thoroughly melted off, then drain, while kept hot, until the wax which adheres to them when being lifted from the water is thoroughly melted, and can be wiped off with soft newspaper. Where the article cannot be easily immersed, benzine or a solution of sal soda will readily dissolve the wax, so it may be cleaned off with a cloth. Benzine dissolves wax almost as readily as water dissolves sugar.

Caution in handling wax. I have spoken about order, care, and cleanliness, in handling honey, candy, etc.; now, my friends, it is a much more serious thing to daub melted wax about the house, on the carpets and on your clothes, than it is to daub either honey or candy. You can very easily spoil a dollar's worth of clothing while fussing with 10c. worth of wax, as I know by experience. When you commence, bear this in mind, and resolve that you are going to have things clean and neat at every step, no matter what the cost. Newspapers are very cheap, and it takes but a minute to spread them all around the room where your wax may be dropped. Have every thing, at every stage, in such order that you would not be ashamed of your work, should visitors call unexpectedly. The greatest trials I have ever had with boys and girls, in trying to teach them neatness and order, has been with those in the wax room; they *will* drop little bits of wax, and step on them. My friend, if you cannot learn to avoid stepping on bees, or dropping and stepping on wax and honey, while you are at work, you would better stop right here, and give up trying to be a bee-keeper. I do not know but you might also give up all thoughts of ever trying to be happy anywhere. You certainly cannot be wanted in this world, and I am not sure you will be wanted in heaven, if you go about carelessly treading on things, and sticking and daubing honey and bees-wax every where you go.

The article below from the *American Bee Journal* of Oct., 1867, covers so many important facts in regard to wax, that I copy it entire :

WAX.

This is an organic product of both animal and vegetable origin, and occurring even as a mineral, though in this case also, its original source is undoubtedly vegetable. The common properties of the substances included under this name are fusibility at a moderate heat; burning with much flame; insolubility in water, and solubility in alkaline solutions, alcohol, and ether; and in most cases a peculiar lustre, to which the name of "waxy" has been given. The most important of these substances is beeswax, which was for a long time supposed to be simply collected by the bees from flowers, but has proved by the experiments of Huber and the Hunters, to be secreted by them. It is obtained in the cakes in which it appears in commerce, by boiling the comb from which the honey has been drained or pressed out in water, with frequent stirring, that the wax may not burn. When completely melted, the wax is strained by pressing through hair bags, and received in a vessel of cold water, which serves to cool it and prevent it from sticking. This is repeated two or three times, the bags increasing in fineness, and the wax is finally melted without water, and poured into moulds wider at the top than at the bottom, and wetted to prevent sticking. After being filled the moulds are kept in a warm room till the wax has solidified, as otherwise the cakes are apt to crack in the middle. This process is however tedious and somewhat wasteful, and various attempts have been made to find a more expeditious one, of which Mr. Bagster's appears the most simple. The combs are placed in a conical earthen vessel filled with a mixture of one ounce of nitric acid to a quart of water. This is set over an open fire till the wax is completely melted, when it is removed from the fire and allowed to cool gradually. The product becomes divided into three layers, the upper one pure wax, the lowest chiefly impurities, and the middle containing sufficient wax to be worth adding to the next melting. A marketable wax is thus obtained at a single operation, without straining or pressing. Beeswax obtained by either of these processes is yellow; has an agreeable, somewhat aromatic odor, and a slight but peculiar taste; is rather soft and unctuous, though firm; has a granular fracture, but when cut shows the characteristic waxy lustre; does not adhere to the fingers, or to the teeth when chewed; is rendered soft and tenacious by a moderate heat; melts at about 142° F; and has a specific gravity of 0.960 to 0.965.

Wax is often adulterated with earth, meal, rosin, etc. The first two render it brittle and grayish, and may be detected and separated by melting the wax, when the impurities may be strained out. Rosin makes the fracture smooth and shining instead of granular, and may be dissolved in cold alcohol, while the wax remains untouched. Tallow or suet renders the wax softer, and gives it an unpleasant odor when melted.

Wax is bleached by causing it, when melted, to pass through a perforated trough upon the surface of revolving wooden cylinders half immersed in water, by which it is formed into films, which are then placed on webs of canvas raised from the

ground, and exposed to the action of the weather until perfectly white. It is, however, generally necessary to repeat the process so as to expose fresh surfaces before the wax can be completely bleached; and care must be taken to finally remove the wax from the webs of canvas only in dry weather, as if it is done in damp weather, it retains a grayish tint, which much impairs its value. The films are finally melted and cast into thin circular cakes, known commercially as "virgin wax." When bleached by means of chlorine or its compounds, the color is destroyed, but the wax is rendered unfit for many purposes, and especially for candles. Another method of bleaching is to add one pound of melted wax, two ounces pulverized nitrate of soda, and stir in by degrees a mixture of one ounce sulphuric acid and nine ounces of water. When all the acid is added, it is allowed to partially cool, and the vessel is then filled up with boiling water, to remove the sulphate of soda and acid; it is then quite white, translucent in thin slices, shining, harder and less unctuous than the yellow, without taste or smell; becomes soft enough to be kneaded at 85° to 95° F., and fuses at 150° to 155° F., though it will remain liquid at a somewhat lower temperature; by great heat it is partially volatilized and partly decomposed, the vapor burning with a clear bright flame; it is insoluble in water, but slightly soluble in boiling alcohol and ether, which deposit most of it on cooling; easily so in the essential and fixed oils; and can readily be combined with rosin by fusion. It is very frequently adulterated with spermaceti, which destroys its peculiar lustre and renders it softer and more fusible; it is also adulterated with stearine, which may be detected by the odor of fat or tallow evolved when the wax is highly heated, and by the crumbly texture which it imparts.

White wax is composed of two principal substances: myricine, which is grayish white without crystalline texture, fusible at 127° F., and almost insoluble in boiling alcohol; and cerine or cerotic acid, which crystallizes when pure, in delicate needle-like crystals, fuses at 172° F., is much more soluble, constitutes about twenty-two per cent of the entire weight of the wax, and has for its formula C 54, H 54, O 4. Wax also contains four or five per cent of a substance called ceroleine, which is soft, very soluble in cold alcohol and ether, and melts at 83° F.; and by dry distillation, and by the action of acids and alkalis on cerene and myricine, a large number of peculiar organic compounds may be derived from it. A specimen of beeswax from Ceylon was found by Mr. Brodie to consist almost exclusively of myricine.

Beeswax, though produced in almost every country in the temperate and tropic zones, is an article of foreign commerce in comparatively few. The European supply is principally derived from the Baltic, the Levant, Africa, India, and the United States. The Portuguese province of Angola, in Africa, annually sends to Europe about 1,500,000 arrobas or 47,772,000 lbs. Japan also exports much. In the United States it has long been an important article of production and export. The census of 1840 gives the value of the product at \$623,303, which would be about 2,000,000 lbs.; that for 1850 states the value of wax and honey to have been 14,853,790 lbs., worth \$2,736,606; and that for 1860 gives 1,357,864 lbs. of wax alone. The exports in 1859-60 were 362,474 lbs., worth \$131,803. In 1861, 238,533 lbs. were exported from New York. In 1860 more than five-sixths of

the exports were to France, England and Brazil.

Besides beeswax, two kinds of wax of animal origin enter into commerce. The first, the insect wax of China, is found coating the surface of the *Rhus succedaneum* and some other trees. It is the product of a very small white hemipterous insect (*Coccus Sinensis*), which about the beginning of June climbs up the plant and feeds upon it, depositing the wax upon the branches as a coating which resembles hoar frost. This is scraped off towards the end of August, melted in boiling water, and strained through a cloth. It is white and crystalline, resembling spermaceti, but harder, more brittle, and more fibrous, fuses at 181° F., is but slightly soluble in alcohol or ether, dissolves readily in naphtha, and has for its formula C 108, H 108, O 4. It does not contain cerotic acid ready formed, but by fusion with potash is decomposed into a mixture of it with a substance called cerotine (C 54, H 56, O 2). The Chinese call it fe-la, and employ it for making candles sometimes alone, but more commonly mixed with softer fats and as a coating for other more easily fusible material, in order to prevent guttering. It is often colored red with alkanet root, or green with verdigris. It has been introduced into England for the manufacture of composite candles, and is found to answer the same purpose of beeswax, of destroying the crystalline structure, or "breaking the grain" of stearic acid. In China it is also employed as a medicine. The French have introduced the insect into Algeria. The price of wax at Nigbo some years ago was 22 to 25 cents per pound, and the annual production was estimated at 400,000 lbs. Another wax of animal origin is the Andaquiss wax of South America, which is produced by a small insect called *avoca*. It melts at 171° F., has a specific gravity of 0.917, and according to M. Levy contains fifty per cent of ceroyline or palm wax, forty-five per cent of ceroxine or sugarcane wax, and five per cent of an oily substance.

Of the vegetable waxes, the Japanese, the palm wax of New Granada, and the myrtle wax of the United States are the principal varieties. The first is as white as bleached beeswax, more brittle, less ductile, and breaks with a smoother and more conchoidal fracture; its specific gravity is rather less; and its melting point is about 127° F. Its chemical composition is not definitely known. The berries yielding it grow in clusters like grapes on trees from 15 to twenty-five feet high, and when gathered are roughly washed and boiled in water, when the wax rises to the surface, is skimmed off, and formed into cakes weighing about thirty pounds. It is said to require protracted bleaching before it is fit for market. Small quantities have been shipped to Europe for many years past, but it is only within four or five years that it has been exclusively employed for candles, &c. The amount exported is large and continually increasing. In 1859 a single cargo of 1,170,000 lbs. arrived in England. In 1860 the price at Nagasaki was \$11 to \$12 per pecul, or 8½ to 9¼ cents per pound. The palm wax of New Granada, (ceroxyl) is obtained from the *Ceroxylon andicola*. The scrapings from the exterior of the tree are boiled by the Indians, and the wax rises to the surface. It is grayish white when crude, and after purification by digestion in alcohol is yellowish white, almost insoluble in alcohol, and fuses at 161½° F. The tree has been introduced into Algeria. Carnauba wax is derived from a palm growing in northern Brazil. It is soluble in alcohol and ether, and fuses at 182° F.

The ocuba wax of Brazil is derived from kernels of the fruit of several species of *myristica*, especially the *M. ocuba*. It is yellowish white, soluble in boiling alcohol, and melts at 95° F. The *Bleuhiba* wax, also from Brazil, comes from the *M. Bleuhiba*, is yellowish white, soluble in boiling alcohol, and fusible at 95° F. The myrtle wax, which for many years has been an article of commerce in the United States, also known as "candleberry wax" and as "bayberry tallow," occurs as an incrustation on the berries of the wax myrtle or bayberry. The berries are enclosed in bags of coarse cloth, and kept immersed in boiling water until the wax collects on the surface, which is then cast into moulds and sold without further preparation. It varies in color from grayish yellow to deep green, has a balsamic and slightly aromatic odor, a specific gravity of 1,004 to 1,006, fuses between 117° and 120° F., and is much harder and more brittle than beeswax. It is composed, according to Mr. G. E. Moore, of one-fifth part of a substance called palmitine, which exists in palm oil, Japanese wax, &c., and four-fifths of palmitic acid, with a small quantity of lauric acid. This wax appears, as a candle-making material, to be worthy of more attention than it has hitherto received. Its illuminating power is scarcely inferior to that of the best beeswax; it hardly costs one quarter as much, can be obtained more free from color, is easily bleached, and from its superior hardness can be cast instead of being moulded by hand like beeswax. The plant grows abundantly on the poorest soils along the coast of New England. Plantations of it have long existed in Europe, and its cultivation has lately been tried in Algeria. The berries of *myrica quercifolia*, natives of the Cape of Good Hope, growing on dry sandy plains along the coast, also yield a greenish wax, which can be bleached, and when made into candles gives a very good light. The sugar cane yields a wax called ceresine, which is soluble in boiling alcohol and slightly so in boiling ether. The sorghum also secretes on the surface of the native stalks a white resinous powder, from which candles could be made. A waxy substance called suberine has likewise been obtained from cork.

Several mineral substances resemble wax in physical properties, the principal of which are ozocerite and hatchettine. The principal use of the different kinds of wax are: 1, for the manufacture of candles, either from pure wax, the consumption of which is especially great in Roman Catholic countries, or of wax mixed with stearic acid, palm oil, &c., as in composite candles; to which purpose every variety, whether animal, vegetable, or mineral seems to have been employed in different countries; 2, as a vehicle for colors in certain kinds of painting, and as a protecting coat for them; 3, for giving a polish to furniture and floors, for both which purposes it is generally used in France and other parts of southern Europe; 4, in medicine, in which beeswax is employed as an internal remedy against diarrhoea and dysentery, as an ingredient in almost all ointments, cerates and plasters, and also for filling carious teeth; 5, as a lute or cement of much utility for chemical and other purposes, and also as an impervious coating for vessels formed of porous materials; 6, as a material for modelling; and 7, formerly for seals instead of sealing wax.

The process given above, of bleaching by the use of chemicals, I have tried repeated-

ly, but although I procured the purest articles, and used the utmost care, I have never been able to get wax enough whiter to make it any object, to say nothing of making white wax of it. The sun bleaching is the plan generally used, if I am not mistaken, but as I have said before, we certainly do not want white wax for use in the apiary. The plan of cleansing wax by the use of acids or vinegar is well known, I believe, but, as a general rule, I think, it is more trouble than the plans I have given. Our friend Doolittle sent us some remarkably pretty wax, that he said was cleansed by the following process, which is taken from *Quincy's Bee-Keeping*, edition of 1866, page 283:

By adding an acid to the water in which the wax is melted, it may be separated much more readily. A quart of vinegar to a gallon of water, or a small spoonful of nitric acid is sufficient.

ADULTERATION OF WAX.

The white wax of commerce, I am sorry to say, is generally largely adulterated with paraffine, which very much injures it for making fdn., as I have before explained. Within the past two years, another substance, called ceresin, has been imported in large quantities, and bids fair to take the place of wax to a great extent for many purposes. It, however, like paraffine, when used for combs, stretches so much, as to make it worse than useless. Both of these substances can readily be mixed with wax, and the problem is to determine when there is such a mixture. My method has been simply to chew a piece of the suspected wax; if adulterated, even slightly, with either, the wax will chew like gum; whereas, if pure, it will soon crumble and break to pieces in the mouth, and will not make gum at all. In buying the ordinary cakes of wax of commerce, we are pretty safe from adulteration with either of these, or at least we have been up to this time (June 1879), but I am daily expecting to find counterfeit cakes of dirty wax, all sizes and colors. I am sorry to say, that there is a species of fraud practiced by the country people themselves, by adding tallow to their cakes of beeswax, but, happily, this is not very common. The presence of tallow is detected, by both taste and smell, and especially, by chewing, for a very small per cent of tallow softens the wax quite perceptibly, and makes it like grafting wax. Where we suspect a cake of wax, I have sometimes made a little of it into a piece of fdn., and hung it in a hive. If the cells made are regular and do not stretch out so as to give the oblong appearance, I

pronounce it pure wax; for, so far as I know, there is no other substance known that will stand the heat of the hive, as will wax, without bulging and stretching.

HOW FRIEND BOLIN WINTERS AND "SPRINGS" HIS BEES BY THIS TIME.

AND SOMETHING ABOUT NATURAL SWARMING.

FRIEND Novice:—Still upon the field of battle, I am lying,—but, hold! that won't do; for we have no time to lie around idle on the field of battle, or anywhere else, just now. As that Arctic wave that almost overwhelmed the apiaries of so many of our bee-keeping friends, last winter and spring, passed our "bee yards" without doing any very great amount of damage, both myself and assistants have our hands full, at present, in attending to the calls of the busy workers.

In fact, friend N., I think my two bee houses render Arctic waves, bee epidemics, &c., almost proof against harm, where the bees have all been properly prepared for wintering. I say *almost*, for I lost a number of stocks, such as they were, during the winter, and a few dwindled in the most *approved style*, after they were taken out of winter quarters; but the greater part of them came through in fair condition.

I sold my stock down to 183 colonies last fall. Some 14 or 15 of these were made up of bees taken out of my queen rearing hives, on the approach of cold weather. The most of them were weak, and several of them had queens that had not commenced laying when they were put into winter quarters, and I do not know as they ever did. The 14 or 15 should have been doubled up into 4 or 5 swarms; but, as the queens were young, I wished to save as many of them as possible, and so concluded to let them take their chances. I lost 13 of the above weak stocks while they were in winter quarters (but not one good colony), and 10 colonies more through loss of queens, dwindling and doubling up after they were put on the summer stands, thus leaving me 160 colonies with which to begin this season.

Of the 183 colonies, I put 49 in the bee house at my northern apiary, 129 in that at home, and 5 in double, sawdust packed hives, were left on the summer stand. One of the above five was among the 23 lost, so that the percentage of loss was considerably greater among them than it was with those wintered indoors.

Now, friend N., to sum this wintering business all up: Do not you give the solution to the whole problem on page 162, May No. of GLEANINGS, when you say as follows? "The chaff hives were all right when the others were dying off at a rapid rate, but within the past week, they, too, have commenced dying," &c., "while the house apiary seems almost unaffected," &c. Now, the single hives, being coldest, died first; the chaff hives, being warmer, held out longer; while the house apiary, being, perhaps, almost or quite frost proof, was also almost epidemic proof.

Now, if there is any false reasoning in the above, please point it out, friend N., for, like one of old, I would rather be "right than be President;" especially, since I suppose the Asst. P. M. Gen. would not let me keep bees at the white house, for fear they might sting him.

My first natural swarm came off May 19, and all, to this date, have come from single hives that were wintered in doors.

We shall probably hear the usual complaints about the loss of swarms by their going to the woods, but if you hear of my losing any in that way, please say it was my fault, or that of my assistants. Don't lay the blame on the innocent bees. But, says one, do your bees never leave for the woods? Well, Yes; I lost one swarm in that way four years ago, and 2 or 3 have tried to leave since then, but did not make a success of it.

In each case, however, the bees had just cause of complaint. In the first case, the bees commenced swarming at about half past six o'clock one Sabbath morning, while the family were at breakfast, and, of course, all hands had to go to attend to them. As it was a close, sultry morning, swarm after swarm came out, so that it was half past ten before all were able to return from "pleasure to business," and finish their breakfast. As appetites had become pretty sharp by that time, of course, all were anxious to return to the house, and, in the hurry, one very strong swarm was left unshaded; the heat in their hive becoming almost unbearable, they left for more comfortable quarters. Those also that tried to leave did so for the want of shade before they had become firmly established in their new homes.

JAMES BOLIN.

West Lodi, O., June 23, 1879.

I do not see but I shall have to give up, friend B., in trying to make you admit that spring dwindling is a disease, especially, as you continue to avoid it year after year, keeping a large number of colonies as you do. I think there is little doubt now, that house apiaries may be made to winter beautifully, but, so far, I have never yet found one who liked to work in them as well as with hives out doors. Shall we really be obliged to lug our hives in every fall, and out again in the spring? How is it, friend B.? do you never have to carry yours out in the middle of the winter for a fly, when there comes a warm spell?

A GOOD WAY TO INTRODUCE A QUEEN.

ON Saturday, the 14th, I received your letter stating that my queen was on the way. So, to avoid hunting out my old black queen, and having so many frames and bees to look over to keep an eye on my yellow queen, I went to my strongest colony, took 3 frames of hatching brood and as many adhering bees as I could get, carried them to a new hive with a division board, and I had a strong nucleus. On Monday morning, at half past 8 o'clock, here she came. Of course, it was a new wonder with the folks here—the idea of sending a queen on the train, and questions were asked without number. So I "lit out" for home, with my new prize. The first thing, when I arrived home was to take care of a swarm that had issued while I was gone. In about 15 minutes they were in the hive, with a frame of brood. I wanted to see if my queen was all right, and if there was plenty of water in the vial; so I made the room dark with the exception of one window, opened the cage, and let bees and all out. I found a little water in the vial, and the candy about half gone. There were 5 dead bees. The rest, queen included, looked rather feeble, but seemed to enjoy a lunch of sealed honey. To test my queen's

wings, I carried her back a few feet and found she could fly almost too well; so I clipped about one-third of one wing off. After all had had their meal, I put them back in the cage, and placed it on the top of the frames of my nucleus, formed as mentioned. I saw conclusively there was no queen in the nucleus, for they had queen cells started, and the bees seemed to be so friendly toward the inmates of the cage, feeding them through the wire cloth, that I thought I would let them out; especially, as they wanted so badly to get out.

Out they came, queen and bees, and not a single fight; no, not even a quarrel; the bees fairly getting on their knees to the new queen. On Tuesday, she commenced laying and would not stop when I would take the frame out to show her to my friends; she would not get frightened at all, but would walk as calmly over the comb, examining every cell and depositing eggs, as though the frames had not been disturbed. She now (the 27th) has 8 frames nearly full of eggs and brood. I built them up by taking frames of brood that was just hatching out, with adhering bees, from some other hive, always taking care not to get the queen. Now they are very populous and work with a perfect "vim." Did I not proceed about the best way for a beginner?

Poehontas, Tenn., June 27, '79. C. M. REED.

Your plan is an excellent one for beginners, or any body else, and you have worked so much like an old bee keeper, I have given your letter at length. A little caution is needed about taking frames of brood, bees and all, for building up nuclei, or weak stocks. The plan will work all right, usually, during the honey season; but, as there is always danger of the queen's being attacked, it is generally safest to shake and brush off all the bees. The comb of hatching brood will be quickly cared for by the bees already in the nucleus.

QUEENS BY MAIL.

LETTER FROM THE POST MASTER GENERAL.

SIR:—For reply to your letter of June 27th, I would respectfully refer you to the inclosed copy of Section 222, of the new edition Postal Laws and Regulations, and state that this Department will make no exception thereto in order to favor any special interest.

The letter of your correspondent is herewith returned. The statement that he has the opinion of several postmasters that "bees" might be sent in the mails when inclosed in certain packages is somewhat surprising, in view of the fact that this Department has used every possible means to advise all postmasters to the contrary.

I am very respectfully,

JAMES H. MAN,

Actg. 1st Assist. P. M. Gen'l.

Washington, D. C., July 1, 1879.

Copy of Section 222, referred to above.

SECTION 222.—Unmailable Matter.—Liquids, poisons, explosive and inflammable articles, fatty substances easily liquefiable, live or dead animals (not stuffed) live insects and reptiles, fruits or vegetable matter liable to decomposition, comb honey, pastes or confections, guano or other substances exhalng a bad odor, are regarded as in themselves, either from their form or nature, within the inhibitions of the preceding section, and under no circumstances must they be admitted to the mails.

Heads of Grain, From Different Fields.

SPEED OF CIRCULAR SAWS.

I DON'T believe we want to trade. I will have to wait till I can sell some bees here or something else. I presume you have used the Barnes' saw, putting on a 6½ in. pulley in place of the small one. When they get them just right, it will be the biggest improvement they ever put on. The saw will be worth double what it was before. You can saw 2 in. stuff as easily, and nearly as fast, as 1 in. before, and a great deal smoother. Now, how is that? The saw now only goes some 1200 revolutions per minute. Isn't this going back towards the slow motion saw? According to friend J. L. Lafferty, I should think the 6 in. saw ought to go 6000 revolutions per minute, or 7000 revolutions, to make 120 to 150 miles an hour. Don't it take too much of the power, for foot work, to get up so much motion? I sawed with the small pulley one day, when I was trying it, 12½ ft per minute, of ¾ stuff. I have not tried the large pulley, in that way; but I sawed several pieces, 2x4½, through at three treads of my foot; they were some soft pieces. I believe a man can do 2 times as much as he could before, on sawing 2 in. stuff, at least.

V. W. KEENEY.

Shirland, Ill., May 23, 1879.

You are right, or at least partly right, friend K. The figures given by Mr. L. are right, where we have plenty of power, but where the power is limited, as it necessarily is by a foot power, a slower motion will often give much better results. We have one of each kind constantly at work in our wax room, and the large pulley is certainly a great improvement for ripping thick stuff.

BUMBLE BEES KILLING HONEY BEES.

A few weeks ago, I noticed a great number of dead bees lying around one of my hives. I began to examine, and found a bumble bee in the hive. I honestly believe he would have killed the whole swarm; almost half were then dead. C. W. POE.

Newberg, Mich., July 1, 1879.

I hardly think, my friend, the bumble bee had anything to do with the killing, unless they, in their zeal, made a mistake and killed some of their own number while they were trying to kill him. I often see bumble bees trying to enter our hives, but they seem to do it rather by accident, or because they get a smell of the honey, than because they have any purpose of harming the inmates. Very often, they are attacked and dragged out dead, like the one you saw.

REFUSE FROM A CORN SHELLER FOR WINTER PACKING.

I packed my chaff hives this year with the casts off from a corn sheller, which consisted mostly of silks. It is very light and dry and packs well. Have you tried anything of the kind? Do you think it will work well?

J. S. HARTWELL.

Odeli, Ill., July 3, '79.

I have never tried anything of the kind, but have no doubt that it would answer.

QUEEN CELLS BY MAIL.

I have just finished hiving a large swarm of blacks, and just as I had them nicely in the hive, the thought occurred to me, in this wise: now, if I had one of Novice's section-box, queen cages, with a nice queen cell in it, to hang in there, how soon I could have a nice swarm of Italians. You say on page 210 of June GLEANINGS, you do not know but you could have queen cells built in these cages; why not find out, and send out queen cells by mail. I will give you 50cts. for a queen cell sent to me by mail, built in one of these cages, and capped over,

any time between now and the tenth of August, just to try the experiment. If I do not hatch it into a queen no matter; if it is from your imported queen, and I succeed in getting it purely mated, I will give you one dollar. What say you? When can I look for a queen cell?

The smokers I received all in good order, and they are as perfect a smoker as I ever saw or expect to see. I sold one of them before I got home from the office, and could not get it back for five dollars. Benton Harbor, Mich., July 7, '79. WM. L. KING.

The idea of queen cells by mail is not a new one, friend K.; but, since queens are so emphatically denied by mail, it may be well to reconsider it. The objections are that the cell will be sure to be chilled and spoiled, unless in the very warmest part of the summer; the queen, if hatched, would generally stand a much greater chance of being impurely mated where the cell was received, than if fertilized in the apiary where it was raised. We value queen cells, from our imported stock, at 10c each, among the neighboring bee keepers around us. If the cell were built in a section box cage, and sent brood and all, it might be kept warm enough to stand the trip; at any rate, we will try it, and 50 cts. will be ample for cage, postage, brood, and all.

FASTENING FDN. IN THE FRAMES.

I would not be without the idea in my June No. of GLEANINGS, of the cup of melted wax and the slip of board sunk in the wax for fastening starters in the section boxes, for the price of GLEANINGS. Surely, Mr. Root, I have enlarged on the little cup of wax. I have a long dripping pan fixed on the same plan for fastening fdn. in brood frames. I have a larger saw kerf or cut in top bar for brood comb, dip the sheet of fdn. in the melted wax, the same as for sections, place the edge of the sheet in the saw cut, and it is done. It does suit me exactly, and is a sure thing. W. H. FERGUSON.

Bloomdale, Ohio, June 30, 1879.

HONEY DEW FOR WINTER STORES.

I send by this mail, a small box containing honey, or honey dew, gathered last fall, which I think was the greatest cause of the loss of bees in this vicinity. Before extracting the honey left by those colonies which were lost, I did not think the honey dew was any detriment to them; but, now, I have changed my mind, as the colonies which were affected the most with dysentery were those that gathered considerable of this stuff. A few colonies wintered as well as ever. Such gathered none of the dew, and this is good proof against such stores. Again; bees never wintered better than they did in good cellars twelve miles south of here, the previous winter. As far as I have learned, there was no honey dew in that section. I have had good success wintering in my cellar for three winters previous to the last, and, in fact, I have never lost a colony in it before. If my bees gather such stores the coming fall, I shall take them out and give them something better, but shall leave a few to give it a farther test.

O. H. TOWNSEND.

Hubbardston, Mich., June 30, 1879.

The sample of honey sent, I think, without doubt, is gathered from honey dew. It has a rich flavor, something resembling liquorice in taste, is dark in color, and thick. I have had it sent in so many times, I think I should recognize it, at once. Now, friend T., I am by no means certain that bees cannot be wintered safely on this; in fact, we have had reports to this effect, but still I should be very glad of further facts in the case. I am inclined to think the honey good for warm weather, but not as good for winter, as is the case with brown muscovado sugars, on account of the caramel they contain.

WHITWOOD OR TULIP TREE—CORRECTIONS.

I have just been reading GLEANINGS for July. Allow me to say that some of the statements in the extracts from "Fuller's Forest Tree Culture" are *very wrong*. I live in the poplar (Tulip) tree region, and we have no other building lumber. All of our houses, fences, bee hives, etc., etc., are built of this lumber. Millions of feet of it are shipped from this part of the state every year. The tree blooms here in April and May.

Mistake 1st.—The seed ripens in *late autumn*, not "late summer or early autumn," as stated. The seed falls the next spring, when the buds begin to swell. It is much sought for by squirrels.

2nd.—The wood is greenish blue, white, and bright yellow. It is classed as hard and soft poplar. The blue and white is used for flooring, outside work, &c. The yellow, being very soft, is used for inside work, moulding, &c. It makes splendid bee hives. I have used 2,000 feet of it for that purpose, frames and all. I would not give it for pine, and have tried both kinds.

It shrinks 5 per cent sideways, none endways. Trees are usually 3 to 6 feet in diameter, 10 feet in diameter being not uncommon. The balance of the extract is about correct, when we consider the many different parts of the country in which the tree is found.

W. J. WILLARD.

Jonesboro, Ills., July 6, 1879.

In our locality, friend W., whitewood does shrink endwise; and, after having used it for several years side by side with white pine, I unhesitatingly give preference to the pine for hives. It is true that pine splits much worse, and, for some things, whitewood is on this account much better; but as far as keeping its place is concerned, we give the preference to pine, by considerable odds. Thanks for your corrections, notwithstanding.

DO QUEENS LAY CONTINUOUSLY?

I have an observatory hive in the parlor, and, yesterday, saw a queen on the outside comb, laying for at least one half hour. She would lay 8 or 10 eggs, and then walk off and take a rest, apparently, of a few minutes, and then commence again and lay 8 or ten more. She did the same thing over and over. Do all queens work the same way? She is a very nice Italian, only laying about 2 weeks.

D. T. KIMMELL.

Moberly, Mo., July 7, '79.

I think all queens work much in the same way. If you will time a queen by the watch, and see how many eggs she lays in a minute, then figure up how many are found in a comb that has been used a day, or a week, you can estimate how much loafing time she has. You will find a wonderful difference in queens, in this respect.

STINGS; ARE THEY THE CAUSE OF SKIN DISEASES, ETC.?

I have been afflicted with a bad skin disease, breaking out in blotches with bad itching and burning, and making me almost a cripple. The doctor thinks it is aggravated, if not caused, by being stung so much for the last 2 years. Stings have not swelled on me, but perhaps poisoned the blood. I find every time I get stung lately, I am worse. What is your opinion about it?

N. A. PRUDDEN.

Your idea, or a similar one, has been advanced several times, friend P., and I have given place to the letter, that we may have all bad features of the bee business brought out, if possible, and not be accused of having enticed beginners into it, by showing only the bright side. Although doctors have suggested it might be the accumulated poison of the stings, I think careful attention to the facts have shown it to be a mistake. A bee stinging will make any such difficulty more acute, or aggravate it, it is true; but I think it is seldom, if ever, the first cause.

If it troubles you only during the honey season, and subsides when you are, for a time, engaged in other business, it would be pretty fair evidence; but, as I have said, cases that have been carefully tested in that way, so far as I know, have shown that the stings are not the cause.

SECTION CASE STICKING TO FRAMES, QUEEN CELLS WITH NOTHING IN THEM, QUEEN CELLS NOT ALWAYS AN INDICATION OF SWARMING.

Is there not some remedy for the trouble of section cases sticking to top of frames? It prevents us from looking for queen cells or for the queen, unless we pry them up and go to a great deal of trouble every time. Do bees ever build queen cells and cap them without any bee inside? Will they certainly swarm when we find queen cells? If not, what becomes of them.

I. H. C.

Chillicothe, O., July 14, 1879.

The matter in regard to the section case, as well as any surplus arrangement above the frames, is one that has troubled a great deal. With not more than $\frac{1}{4}$ inch space, there will usually be little or no comb built between them, but some colonies seem determined to build it all up solid and fill it with honey, no matter what the space may be. A closed top frame, or a similar arrangement, will do, it is true; but generally, I believe, the remedy is considered worse than the disease.

A weak nucleus will sometimes nurse and care for a cell containing nothing, but seldom a good, healthy colony or nucleus. Queen cells are not a certain indication of swarming, but usually, unless change of weather or cessation of the honey yield or something of that kind ensues, it will result in swarming. If they give it up, the queen cells are torn down just as they destroy drone brood.

Last March, I put cloth feeders, $\frac{1}{2}$ as deep as frames, in two hives, and fed a little extracted honey each day, for three weeks, when worker comb was built from each bag nearly to the bottom of the hive. There was a little honey in each comb, but next to the feeders they were empty. There was some brood in the centre of the frames. Both were good stocks, and had plenty of room. Why did they build extra comb in March?

J. H. BEMIS.

Mt. Airy, Surry Co., N. C., June 25, '79.

You have given the principal objection to the cloth bag feeders; viz., that the bees will build combs under them; and they will not only do it in March, but even in winter, if they are fed regularly during a warm spell. The bees build the combs directly under the feeders in preference to any other place in the hive, because it is so much nearer the feeder.

SUGAR SYRUP IN PREFERENCE TO NATURAL STORES, ABOUT CLOSED TOP FRAMES, ETC.

I notice in GLEANINGS that bee men in all parts of the country are complaining of losses last winter and spring, and each gives his opinion of the cause. I claim the right to express my opinion, as I think last winter should teach us all a lesson. To start the winter with, in our locality, I am satisfied that the stores were impure and unhealthy. I thought so in the fall; and, in Oct., I extracted nearly all the honey from 3 hives, about $\frac{1}{4}$ from 2, and left 2 with all their honey, and fed all up with a sugar syrup, and packed all alike with chaff division boards and chaff cushions on top. The result was, in Feb., that the 3 were all in good condition, with plenty of brood; the 2 from which I extracted $\frac{1}{4}$ of their stores had slight attacks of dysentery; the other 2 from which I extracted none were just about as good as none, the last week in Feb., and I put them into other hives, cleaned up their hives, put in some good

empty combs, and put the bees in on them. I then let them get hungry, and fed them A sugar syrup with a little essence of peppermint. One of them has given me a large swarm that has nearly filled a L. hive, and the worst one has now plenty of bees and stores, and all the rest are doing as well as bees can do in this locality.

I think I learned something last winter that will be to my future benefit in bee keeping; that is, never use closed top bar frames. They have undoubtedly proved injurious; there is more spring dwindling with them than with the open tops.

Johnstown, Pa., July 11, '79.

P. GRAHAM.

I am an A B C scholar, but instead of asking questions, when in doubt, I have waited till, in some subsequent GLEANINGS, I have found out, at least, what was the opinion of some bee philosopher upon the doubtful point. But there are a few questions that I have, so far, failed to get sufficient light upon, and, as you are so friendly to beginners, I am encouraged to ask.

GIVING ROOM TO THE YOUNG QUEEN AFTER SWARMING.

After a strong colony has sent out a swarm, when honey producing plants are abundant, will not the queenless colony fill with honey all available space, so that the young queen, when matured, will be cramped for room to deposit her eggs? and, if so, will not the colony dwindle without some artificial help?

Such won't seem to be the case, but it does not often happen, in reality, with the common bees or hybrids. When the young queen begins to lay, they will take the honey out of her way, and put it in the surplus boxes, if they have room, and the pollen in the combs will speedily be used up to feed the young brood. The pure Italians sometimes almost ruin the colony, by cramping the queen, and, unless empty combs or fdn. is furnished them, the colony will suffer greatly.

Is it not best to supply such colonies with empty combs or, in case you have neither, with empty frames, as soon as the queen begins to lay? If supplied with empty frames before the queen lays, I find they will fill with drone comb.

Yes; give them empty combs just as soon as, or a little before, the young queen begins to lay. They will build beautiful worker comb often, just before the queen begins laying.

FDN. FOR ITALIANS AFTER THE FIRST SWARM IS OUT.

Is it not proper to supply such colonies with fdn.? and, if worker fdn., as soon as the new swarm leaves the hive?

Yes, it will *do* to put in fdn., just as soon as the old swarm has left.

HOW MANY WIRES ARE NEEDED IN FDN.?

How far apart would you advise putting the wires in the fdn.?

After considerable experimenting, I prefer the wires just as shown in July No., which brings them about 24 inches apart. If only two wires were put each side of the centre strip, we had, occasionally, a little bulging.

SWARMING OUT WITH THE YOUNG QUEEN WHEN BROOD IS ALL HATCHED.

I have found out by the loss of 2 or 3 swarms, that when a swarm is transferred, and the old queen lost, if the brood is all hatched at the time the young queen takes her bridal trip, the bees will swarm out and leave with their young queen, unless supplied with brood unhatched. Query: Does this rule apply to after swarms? If not, why?

I have never seen trouble with swarming out, when there was a fair sized colony, but much trouble with weak nuclei. A colony, after being transferred, is often more or less upset as it were, and more apt to swarm out.

Unsealed brood and eggs are always desirable in a hive.

CROWDING BEES AND STORES ON FEW COMBS FOR WINTER.

I see it is recommended in GLEANINGS, to crowd the bees upon as few combs as they can cover, for wintering. Query: Will those few combs supply the bees that can cover them, with a sufficient amount of honey to winter them, after deducting the space necessary for brood?

Reese, Mich.

L. D. GRAY.

Yes; for but little brood is found, when your combs are crowded up for winter.

A WORD AS TO DOLLAR QUEENS AND GRAPE SUGAR.

I bought of you in '77, one tested and 3, "dollar" queens; in '78, I bought about 15 dollar queens. Your tested queen, by mistake, proved impurely mated. At least two-thirds of the "dollar" queens have produced pure Italians, and are as vigorous and prolific as the average of those I have had for 20 years, beginning with a queen from Mr. Parson's, the year he imported first, 1859, I think. The dollar queens of last summer were given two frames of brood and bees, upon arrival, and built up by feeding through the summer, syrup made of grape sugar, in addition to the honey they gathered from flowers, which could not have been much, as we have nothing of consequence after white clover; no buckwheat, and very few fall flowers. I fed near 500 lbs. of grape sugar. One of these colonies, the latest made (as they lost the first queen, which was only replaced in August), lost about one half its bees in the winter and has been weak this spring. The others wintered as well as any, and are now among the best I have. I have given you the facts about grape sugar feeding, but prefer feeding good sugar at 7 or 8 cts. per lb., taking into consideration the labor of making grape sugar into syrup, and its understore want of saccharine matter.

Dayton, O., June 5, '79.

J. H. PIERCE.

I cannot account for the tested queen's producing hybrids, unless she began to produce them after she was shipped away, and I am not sure that this is possible. I should be very loth to think we made a mistake here. We have now 250 colonies raising queens in our apiary, and there is not a black or hybrid queen among the whole, unless it is among the untested queens. None we have tested have as yet proved impure.

BEES AND HONEY IN TEXAS.

Our honey crop for this season is about over. Bees have done well where they were in reach of plenty of mesquite, which is the dependence here in dry years. It rained Nov. 15th, 1878; again April 22nd; never since, in my immediate neighborhood. There have been partial rains around for three weeks past. Bread corn will not be made in southwestern Texas. There will be about a half crop of wheat; cotton crop is fair. I have 100 stands of bees (L. frame). I bought an Italian colony from J. W. Eckman, Richmond, Tex., and raised 35 queens and 5 swarms from the old one. Black bees through here averaged about one swarm from every fourth hive.

Beimont, Texas, July 8, 1879.

O. R. FLOURNEY.

CALIFORNIA WHITE SAGE.

I see you think of planting some California white sage. I think you will have to keep it in a green house or hot house in winter, as it only blooms on the second year's growth, the same as raspberries or blackberries. The tops die after the seed ripens, and another growth is ready for the next year, on the same roots. There are from three or four to a dozen or more stalks on one root, and it grows from 4 to 6 or 7 feet high according to soil. It does not grow up high on the mountains in Los Angeles Co., so there is not much difference in the time of bloom of that growing on the highest, and that on the lowest grounds. Wm. Muth Rasmussen in A. B. J., page 263, calls the flowers pure white; but they looked to me of a pale yellow. Otherwise I agree with his description.

Cannon City, Minnesota.

JNO. BECKLEY.

COMPOSITION OF BROOD COMBS.

Seeing you have had some difficulty in preventing your fdn. from sagging by means of introducing wires, and thinking of the true composition of honey comb, I drop you a line to suggest the experiment of introducing dry paper pulp, by mixing it with the melted wax before the sheets are formed. If you have not used it, I should like to know what would be the result. True comb has a substance resembling the material of a hornet's or wasp's nest, working in with the wax, which, I think, adds greatly to its strength. Other substances may suggest themselves to you in practice. Some such process must be resorted to, before fdn. is a perfect success.

W. D. HOOPER, M. D.

Fancy Farm, near Liberty, Va., June 17, '79.

I am well aware that brood combs often contain a substance of a papery nature, such as you suggest, and I have long been wondering if we could not work in some such material as the bees use in capping their brood; the cappings to drone brood, for instance, are more like brown paper than they are like wax, but I have never figured out as yet, how we could make fdn. like it. The trouble is, the little chaps are too fastidious, to be easily suited with any such thing. I have worked paper of every description, into the combs; but, sooner or later, some bee takes a notion to investigate, and the nice, beautiful comb is riddled in a short time. While honey is coming in rapidly, they are very well contented with combs having a base of strong paper, but when the honey ceases, they are ready for this kind of mischief, thinking, probably, that it looks too nearly like the fabric the moth worm uses for his web. To go back to your point, friend H., bees often build new comb, that is quite largely composed of some fibrous, foreign matter; but, as this is all taken out by the melting process, our fdn. of pure wax always lacks this strengthening material. Who will help work the thing out?

COMB BASKET FOR EXTRACTING BROKEN PIECES.

I am in receipt of the "comb holder" by mail; the other "holder," for extracting, I will keep, as I found use for it before it had been here 24 hours, in extracting from a broken down comb.

Cedar Rapids, Ia., June 28, '79. B. C. BLACHLEY.

So it seems that mistakes are not *always* misfortunes. One of the clerks sent the wrong article, and it turned out a very handy thing to have in the (bee) house, after all.

CHAFF RIGHT ON THE BEES.

Bees here, as well as every where else, had a hard time of it. They are very few who have not lost half of their stands. I had 7, frame skeps last fall, and I bought 8, box skeps every one of which was heavier than any one of mine. This spring, I had 7, frame skeps in good condition, and 3 miserably weak box hives. As I had no chaff cushions or division boards, I placed boards sawed to fit the hive, beside the frames, and packed chaff between the board and the side of the hive. The mice got in the frame skeps and worked the chaff all through the combs, and I think that is the reason that they came through all right. I caught the mice before they had been in two weeks, by placing a trap in the skep, above the chaff.

HENRY P. DENAREST.

Warwick, N. Y.

I have before mentioned having the chaff right in among the bees, covering the bottom board, etc., and I can not help thinking that such an arrangement might not only do no harm, but give them the very best possible protection during the extremes of winter weather. A good colony of bees would be

able to "root" the chaff out of their way, when they wanted to get at fresh stores of honey; would they not? You remember that was the way my first chaff hive was wintered.

HOME MADE MATS.

I send you by mail to-day a mat of my make, for covering bees, and would like to hear what you think of it. I think it will take them quite a long time to *eat it up*, or even to eat through it, as there is nothing but wood that they can reach if laid the right side up.

A. A. FRADENBURG.

Port Washington, O., June 30, '79.

The mat is much like ours, in appearance, except that the slats are about an inch wide, and are held together by strips of stout cloth. To make them, friend F. has a board made of the proper size, with strips of band iron under the strips of cloth, on which to clinch the tacks. Four strips of cloth are used, and two tacks are put in each crossing of the strips of cloth and wood. At present, I am unable to decide which is handiest, the mat or the sheet of enameled cloth; each have especial advantages over the other. The enameled cloth is *waxed* less than the wood, and I believe may be handled more quickly without killing bees.

WINTERING WITHOUT PROTECTION, STANDS FOR HIVES, ETC.

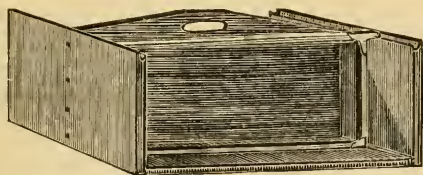
When I left off taking GLEANINGS, 2 years ago, I had one swarm of bees. They increased to 3 that summer; last summer they increased to 10. I wintered on their summer stands without any protection, only as they protect themselves. They are all alive and doing well now, and have had 4 swarms this spring, which are all doing well. They mostly alight on an apple tree. I have the hive set where I want it, and then I have my wife's clothes basket tied to the garden rake, and going up to where they are, I hit the limb with the rake and hold the basket under to catch them. Then I carry them where I want them, and empty them on a sheet, and it is fun to see the little fellows travel for their new home. I saw blocks off from trees about 10 inches long, and set my hives on them. I think that has a tendency to keep the dampness of the ground from the hives.

C. A. H. FISHER.

Onawa City, Iowa, June 19, 1879.

I am well aware that we have, every year, reports of successful wintering without protection, but I was a little surprised to hear my neighbor Dean say, a few days ago, that he believed a colony would winter every time, if left on their summer stands, with the upper story on, full of section boxes. His farming neighbors all around him, who had carelessly left their bees in that way, had wintered them all right. As it was a very hard winter, upward ventilation was unusually necessary, and this they had without stint. A few years ago, I discovered, in March, a colony that had been left by mistake in the same way. They were a rousing colony, and the bees were right up against the bottoms of the broad frames, which they had waxed and gummed up in pretty comfortable style, considering. "You poor neglected things!" said I; and I went and got chaff cushions and fixed them up in the most approved style, even though they did object most vehemently. Well, they began to dwindle from that time forward, and soon played out entirely. Should I look at this one case alone, I might decide in favor of out door wintering without protection.

A NEW COMB HOLDER.



CLARK'S COMB HOLDER.

I see nothing among your comb holders which I think quite as convenient as the one represented above which I use. It consists of two ends of a Simplicity hive with the rabbets, a bottom nailed on, and a piece through the centre with a hole cut for the hand. I can take out with it, enough frames with fdn., for a hive, and still have room to put on frames from the hive. N. C. CLARK.

Sterling, Ill., July 16, '79.

OVER PRODUCTION OF DRONES, AND PASTEBOARD SECTIONS.

Last Sunday, the 22d, one hive swarmed until I thought the hive had been transformed into an automaton, and was vomiting forth bees for fun. I hived them, and they have thus soon (6 days) built comb and stored honey until it would give any Novice the "bee fever," were he not armed against it. I'm not "armed to the teeth" though, for I like it, fever or no fever. The hive from which they issued had one box nearly filled, and one I put under it well started; immediately after swarming, the bees left both boxes, and have done nothing since. A few bees roam over the combs but the *drones*, a part of the time, arrange themselves in platoons on the combs, and take possession of the partly filled cells. The *body* of the hive is pretty well filled with bees, but there is an over abundance of *drones*. Why so many drones? and why don't the bees work in the boxes as other stocks do after swarming? Can not sections be made cheaper and answer as well, from heavy pasteboard pressed into shape as the butter dishes are which you see at nearly every grocery? I want your story and a half Simplicity, all complete, this fall. Wm. M. YOUNG.

Nevada, O., June 28, 1879.

Your hive that contains so many drones has probably an unprofitable amount of drone comb in it, and the presence of so many drones to eat up the honey is very likely the reason why they do not work in the boxes, like the other stocks. It is a little doubtful about getting sections made of pasteboard that the bees will not bite and gnaw; besides, very nice sections are now made of wood, for 4c. each. Pasteboard could not be near as substantial, and probably little, if any cheaper.

WHAT TO DO WITH BEES THAT HANG OUT AND WON'T SWARM.

I have one stand of blacks, which, early in the season, appeared well thinned of bees; but, early in June, they raised a large brood, completely filling the hive, making two boxes of honey, and, at the same time, hanging in large clusters outside the hive. About the 10th of June, they started a queen cell, near the glass, fashioned it for half its natural length, and then ceased all work upon it. No swarm issued. I waited until July 12th, and then took two frames (Gallup) from a strong swarm of Italians, filled half with sealed brood and half with honey, on one of which was a queen cell, with larva and royal jelly, brushed off all the bees and placed the frames in an empty hive. To this I added one frame from a strong hive of blacks, filled with sealed brood and honey, cutting out two queen cells, and brushing off all bees as before. I then brushed off all bees clustering on the hive which had not swarmed, moved it 20 feet away, and in its stead substituted my new hive, filled out with empty frames. The bees brushed off soon entered the new hive, the brood hatched in a few days, and blacks and Italians seemed to abound. The new swarm is now strong in bees, but the hive moved away would be called but a fair

swarm. Will the queen cell thus left be accepted? Have I not made an Italian swarm? Will my new made swarm be pure Italians? Will the old hive, still retaining its queen and having plenty of stores, become strong before cold weather? One other query: In early June, after the first issue from the Italians, can I not remove all queen cells but one, and insert them in the frames of blacks, with their brood, thus retarding, or perhaps preventing, the blacks from swarming? Can I not move the hive of blacks as before, thus gradually Italianizing in that way? W. G. PECK.

Arlington, Mass., July 18, 1879.

I can answer yes to all your questions, friend P., except about the purity of your artificial colony. This, of course, depends upon what kind of a drone the young queen meets. Your plan is a very good one for making artificial swarms, and it is substantially the same as the one given in A B C, under ARTIFICIAL SWARMING.

AN IMPROVEMENT SUGGESTED ON PREVENTING FRAMES FROM SAGGING.

Having been bothered with combs breaking down, sagging, &c., I thought I would try your plan which you describe in July No. of GLEANINGS. Well, I went to work and made some, but found it slow work, and the wires would be more or less crooked, and on straining the cable I would sometimes pull the frame out of square, and would be bothered to square it again; so I rested and considered. The result was I made some in which I used twine in place of wire—common gray twine such as broom makers use, being thoroughly waxed. I found I could make them about twice as fast and square the frame easily, and it needs no brad through bottom bar and is sufficiently strong, as I have proved by experiment. I had one fear that perhaps the bees would gnaw off the twine; but after a week's trial I see no symptoms of it, and I think it is a success. Newaygo, Mich., July 21, '79. A. P. DAY.

Almost all kinds of twine, hard paper, etc., have been tried repeatedly, and discarded. Even if they do let it alone for a short time, they are pretty sure to tear it out when the yield of honey ceases.

COMBS MADE WITH A THIN PINE BOARD AS A BASE.

I have succeeded perfectly, with a board about $\frac{1}{2}$ of an inch in thickness, and the only difficulty now consists in getting these boards coated perfectly with wax on which to make the fdn. For once in the world, we have combs perfectly even, and safe from sagging. You can scrape off the honey if you like, and let the bees build on more; but the boys complain that they can not cut out queen cells from them.

SPONGE FOR THE BOTTLE CAGES, AND THE PAULONIA TREE.

Try a piece of sponge in the mouth of your bottle of water in your shipping cages. I think you will like it better than a string. I can furnish you seed of the Paulonia tree, as soon as they are ripe. If any of your readers know anything about it as a honey producing tree, it would be of interest, if they would impart their knowledge through GLEANINGS. T. B. PARKER.

Goldsboro, N. C., July 8, 1879.

Nothing seems to answer as well, in the bottles as the cork with a groove in it. The sponge allows the water to evaporate faster, and, for a long journey, this is quite an objection. Our Paulonia trees are making a nice growth, but we do not get any blossoms. Farther south, in the southern part of our state, for instance, they are said to blossom profusely.

Notes and Queries.

A WORD FROM BEECH CITY, O.

WE had a visit, the other day, from our aged friend and bee keeper, Doctor S. Wolf, of Willmot, who has to say that he now has the greatest number of colonies of bees, and less honey than he has had during his experience of twenty-five years. So far as he knows, he says he has not one pound of section honey in his apiary, owing to the poor season. As for our apiary of fifty five colonies, we have a more favorable report, as we have honey enough for the use of the family, and some little to sell. Our neighbor farmers tell us that, while mowing their clover hay, they saw the Italians were working on the red clover as readily as on the white. The statement heretofore often made by others that Italians are not superior to the blacks, in our minds, no longer admits of argument; as those who see may well know for themselves. **EMMA STAMBAUGH.**

Beech City, O., July 21, 1879.

I received the two hives and smoker on Saturday last. I got home at five o'clock and had two large natural swarms to put in them, and to-day, one week, they have 6 brood frames full of comb and honey in one, and the other is all full. I have used wood frames but will never use any more, if I can get metal cornered ones. **J. SCOTT FISHER.**

Jordan's Mills, Pa., June 27, 1879.

COLOR FOR HONEY CRATES.

Concerning the color of honey crates, I would respectfully remind you that the Good Father thinks that dark chocolate brown, mazarine blue, sky blue, and royal purple, are the settings for yellow. Brown and purple will make it (the honey) look brilliant and golden (see marigolds, ripe sunflower and purple pansies); dark blue will make it look pale and delicate (see moon, stars and sky); pale blue will give an intermediate shade (see sun and sky).

Hersey, Mich., July 15, '79. **Mrs. E. LORING.**

AFTER SWARMS RETURNING TO THE PARENT HIVE.

Why does a swarm come out with a young queen or queens, and return without alighting? The phenomenon is similar to that of a first swarm, when the queen is so heavy that she can not fly. I have had several such exhibitions this season.

[I think it rare that a second swarm goes back to the old hive, if the young queen is with them. I should be inclined to think her wings imperfect in some way, and that she could not fly. I can not imagine how you should have had several such.]

WHICH WILL THE BEES CHOOSE, A FERTILE OR VIRGIN QUEEN?

If two swarms unite, one first and one second (one matron and one virgin queen), which queen is usually destroyed? or is that merely accidental?

I have had one such case, in which the laying queen reigned supreme.

[The unfertile queen would be most apt to be destroyed; for bees almost invariably give the preference to a laying queen.]

DEXTRINE FOR GUMMING LABELS.

Also, how is the gum made and put onto the U. S. postage stamps? Are your labels gummed with the same preparation? The above three questions answered would greatly accommodate me.

"RENLE."

Lebanon Springs, N. Y., July 17, 1879.

[The gumming on our labels and postage stamps is dextrine. It is a most tenacious paste, for any purpose; almost like glue. It is obtained principally from starch, and is nearly allied, in some respects, to grape sugar and glucose. We can furnish it, for 20 cts. per lb.]

HOW TO CURE DULL TIMES.

I made a trip of 10 days and transferred 40 stands of bees on the halves, 15 stands for \$3.50, and sold and delivered 3 stands at \$7.50 each, and 7 hives for \$3.00. I start to-morrow to the same neighborhood to work 25 more on shares, and expect several for cash. My son and I transferred 20 in one day. I have made this winter 215 hives. **T. C. STANLEY.**

Jeffersonville, Ills., Apr. 15, 1879.

I received the queens and smoker on the 8th. They were a great curiosity to the people about here. Every one at Greenwood had to take a look at them, and it was soon over the neighborhood that I had got some Italians from Mr. Root. I introduced one all right; the other, I had to take out of the hive three times, and drop them in water to un-ball them. **H. H. C. BREECE.**

Greenwood, Col., July 12, 1879.

PRUNING SHEARS FOR TAKING DOWN SWARMS.

Small branches are often in the way, when taking a swarm from a tree. Even branches 1 inch in diameter can be taken off with pruning shears in less time, and with less jar, than with a saw.

WM. H. H. KIRK.

Waterbury, Conn., July 15, 1879.

INTRODUCING QUEENS BY ROLLING IN HONEY.

Being an amateur in the bee business, I got my friend Hickok to help me introduce a queen. After rolling her in honey, he put her in the hive and the bees lalled her at once; he then took her out and put her back in the cage, and while we were getting the frames all right in the hive, her own bees in the cage lalled her and stung her to death.

Bethel, Conn., July 11, '79.

PHILO GILBERT.

[I have not been able to discover that daubing the queen with honey makes any difference; if she would have been received well without it, she probably would have been with it. The worst part of it is, that if she has to be re-caged, the honey is quite apt to dry on her body and kill her.]

BURYING BEES, ETC.

Two years ago the middle of this month, I caught a small swarm of bees that was crossing my corn-field, and, although perfectly ignorant in regard to bees, not knowing a drone from a worker, I hurried to a neighbor's where I procured a L. hive, got the bees into it, sent for GLEANINGS, and went to studying both book and bees. From that swarm, last summer I got two new ones, making three in all, and about 70 lb. of honey besides. One of my neighbors had two swarms in nail-kegs last fall, which were too tight to winter, so he buried them in the ground like cabbage or potatoes, and one of them lived through all right. He did this under the impression, that they would not require so much food, but would live more like bumble bees. What do you think of that? **E. A. ALLBEE.**

Pleasant Prairie, Ia., June 9, 1879.

[Bees have been wintered very successfully when buried, and I believe they consume very little honey comparatively. The plan has been generally abandoned, I think, because of the trouble it involves, and that they are very apt to be injured, if not killed outright, by dampness and mold. Caves or cellars in dry sandy soils, are, I believe, just as good, and much more convenient and tidy.]

BLACK BEES AROUND SODA FOUNTAINS, ETC.

In July No. of GLEANINGS, in reply to A. J. Bogel, about driving off bees from soda fountains, you say, "Such troubles only occur when the yield of honey has ceased," which may be correct in Ohio, but 'tis not here. With Italians it is correct, but not with black bees. Here, black bees will trouble when Italians are laying up a little surplus. I have probably used full as much fdn. as any person in the South; but without wire, or other substitute, I consider it half a failure in this part of the South.

Shreveport, La., July 18, '79.

C. R. CARLIN.

WHAT TO DO WITH AFTER SWARMS.

I have just commenced bee keeping with two swarms, this spring. One has swarmed four times; the other, twice. The last swarm, after being hived four days, marched into the first like a flock of sheep, the hives being three feet apart. A few remained in hive No. 2, and they are now going back and forth. Please tell me what to do with them, and how to strengthen the weak swarm and oblige.

North Adams, Mich., July 8, '79.

J. R. HALL.

[Your hives are too close together, but no harm is done so far. I think your stocks might all be fed up and saved, but it will probably be safer, to unite them until you have only three or four good strong ones. Too much depends on location, pasturage, etc., for me to tell you just what to do here. See FEEDING, WINTERING, ETC., in A B C.]

DARK COLOR OF IMPORTED QUEENS, ETC.

I have just examined the hive with the one imported queen I received of you. I stated, at first, that she was a black queen and I feared had been changed on the journey; but, although she is black, and in all respects inferior in looks, her bees, now hatching, are very large and yellow, very much unlike herself. My bees are doing splendidly; I have 23 swarms now. I am using Dunham's fdn., and have 200 sheets built out, and not a sag or tear down in any one yet. I use sheets weighing $\frac{1}{2}$ of a pound each, the size of a L. frame. I use Lewis & Park's sections, all in one piece. E. A. MORGAN.

Arcadia, Wis., July 15, 1879.

INTRODUCING.

I have been 12 days trying to introduce an Italian queen, and to-day, the 12th day, she took wings and left me,—but returned in about 30 minutes, so I caught her. How long shall I continue to try?

Anderson, Ind., July 16, '79. A. J. DAVIS.

[I would keep trying "all summer," but I think, friend D., I would try her in another colony, before I had got up to as many as 12 days. Have you tried taking all their combs and brood away?]

SAVING FOREST TREES.

Single trees have been burned in America in log heaps, which, cut into veneers would sell for more nett cash, than the whole farm where it grew. When our forests are as well treated as those of Europe, few trees will be cut except by advice of a forest engineer.—*Harper's Magazine*.

[I have often thought of the way in which our American people are injuring our bee pasturage by cutting down our basswoods. If nothing can be done to stop it, we can certainly be raising more. I am just now thinking of starting a bed of seedlings. The seed will soon be ready to gather, and should be planted immediately, and covered with leaves, as in its native forests.]

PINCHERS FOR LIFTING FRAMES.

Did you ever use a pair of pinchers for lifting out frames? I have a pair formerly used by a dentist. They open wide enough to take in the top bar and have a sharp cutting edge, $\frac{1}{2}$ inch face, that takes hold perfectly. They never slip, and one hand can lift out and handle the frame, leaving the other free. It is a first rate tool. My bees now in chaff, and with top boxes on, are not swarming, while the old box hives about me are pouring out freely.

[I think, friend P., I should consider your pinchers too much machinery. I pick up a frame with one hand, without any trouble, grasping it by the centre of the top bar. Especially if it is a metal cornered frame, and does not have to be pried loose at each end.]

Is there any way to extract melted beeswax from woolen clothes?

[Benzine will dissolve the wax from the clothing, but it is rather a slow process.]

GETTING STARTERS BUILT OUT IN THE BROOD APARTMENT.

I am getting very nice comb for top boxes, by placing a frame of fdn. in the brood nest, for two days, when it will be finely drawn out, and, when in boxes, it will be filled before common fdn. will be touched. D. F. PARK.

Athens, Pa., July 2, 1879.

[Your method of getting starters has been given before; but, so far as my experience goes, the bees go to work on simple fdn. almost as quickly as on that which has been partly built out, and your plan is considerable trouble, to say the least.]

BEES EATING RASPBERRIES, GRAPES, ETC.

I must tell you something about the conduct of my bees. During the blossoming of the white clover and linden, they gathered considerable honey, though the weather was quite dry; but this good time seems to be passed now. The blossoms of the lime tree are gone, and of the white clover, but few remain, which appear to furnish no more honey. What do you suppose bees are doing now? They went after my Turner raspberries, sucking them all dry. As soon as a berry is getting ripe, you can see it covered with bees, and, in a short time, all its juice is gone, and only the skin and the seeds are left. I have seen bees sucking ripe grapes, in a

dry season, but never raspberries; have you? They do not touch the black caps or the Philadelphia's. Like true gormands, they prefer the nicest and juiciest. There is no difference between the blacks and the Italians; they are all the same pilferers.

Highland, Ills., July 9, '79.

J. BALSIGER.

[I have never before heard of bees eating raspberries, but I have for several years been aware, that they do sometimes, during dry seasons, learn to bite open grapes, especially the sweet varieties, such as the Delaware, and when they have well learned how, they will often strip the vines entirely. This, however, is only when there is little or nothing to be had from the flowers. I should judge from their behavior that the Turner raspberry must be a desirable variety, at least, for home use.]

I found a swarm last winter, in a little tree. In June, it swarmed 3 times. On the 4th of July, I took maul and wedge and split open the gum, and tried to coax them into a new hive; but they would not go in. The next day, I drove them in, so I thought they were safe. I went to town, and when I came home at night, my little girl told me they had swarmed and gone off. I looked at my hive, and saw that they had gone. So I lost my day's work on the 4th, and bees too. LEHI ELLISON.

Woodbine, Iowa, July 14, 1879.

[I think, if you had put a little brood into your hive, friend E., you would have held your bees, and not wasted your 4th of July.]

CARRYING OUT IMMATURE BEES, ETC.

My bees were swarmed on the tenth day of last month, and have worked ever since until yesterday and to-day. Now they don't seem to do anything, but carry out young bees dead and living, in various stages. Please tell me if anything is wrong?

Massillon, O., July 12, '79.

THOS. H. CURRIE.

[I think there is nothing wrong, friend C. The honey season has probably closed, and that is why they are doing nothing. If they are black bees, very likely it is brood injured by the moth, which they are carrying out. In this case, there would not be a great quantity. If suffering from starvation, which I presume is not the case, a great deal of brood might be brought out. Drone brood is almost always brought out when the honey crop fails; for, having given up swarming for the season, they seem to know it would be a useless bill of expense to feed drones any longer.]

DEPOSITORY OF

Blasted Hopes,

Or Letters from Those Who Have Made
Bee Culture a Failure.

WHEN I sent for my hives, I thought we were going to have a good honey year; but bees have done no good here—have not made enough honey to keep up brood rearing. Bees have not swarmed here much this season; have not had more than 18 swarms. It has been too dry and cold. White clover was not noticed. Buckwheat is coming, and if it has no sweet, what will we do?

The smokers that you sent went like buckwheat cakes and maple molasses.

I thought I would give you a sight of my sugar grove apiary, but don't know whether I will or not; if things don't change, I will have to buy sugar and feed. I have lots of bees, and some have not a drop of honey. I took some last year's honey, in one lb. boxes, to Sullivan; they thought it was the finest honey they ever saw, and came in like bees after it.

I have no use for upper stories this season. I could have sold all of my hives, if I would. Some say that they won't feed; the bees may starve. After a man gets anything, save it: if it don't pay this year, it will next.

Fairbanks, Ind., July 8, 1879.

BYRON RIGGS.

I know the above is not a very good letter for this department, but I must have something, and all the A B C class seem so hopeful, it is hard making a choice.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POST-PAID.

MEDINA, AUG. 1, 1879.

Therefore, my beloved brethren, be ye steadfast, unmovable, always abounding in the work of the Lord, inasmuch as ye know that your labor is not in vain in the Lord.—1 Cor. xv. 58.

I PRESUME, with most of you, the yield from basswood has failed, and that your bees are touchy and cross; be sure you are not following their example in this respect. Remember the little text above.

I HAVE been to the expense of fitting a table to the top of the grindstone figured last month, and tried a saw on it. It fails only for want of a balance wheel, and this cannot be added so as to be put out of the way, without considerable more machinery.

THE HONEY FARM THE 28TH OF JULY.

THE bees are now working briskly on the Simpson honey plant, borage, and mignonnette. The borage affords the most bloom, and the bees are busy on it from daylight until dark. The mignonnette is just beginning to send out a perfume for quite a distance, when the breeze is blowing upon it. The sunflowers are just opening, and make a very pretty sight. The silver hull buckwheat is doing finely, and its first blossoms will be out in a week. Even though these crops are all doing nicely, it must be remembered that 15 or 18 acres go but a little way in supplying or keeping busy 250 colonies.

The principal part of our queen rearers have now adopted the candy cage and bottle (or some modification of it), which I described and figured two years ago. Friend Blood has sent us one of a larger size, containing two bottles, and says he has never lost a queen in them, even when sent to Cal. and Texas. He prefers the sugar and water to honey as food. I agree with him, but I want a piece of comb added, and bees enough so that the queen may be laying on the way. Where we have a great many section boxes with a little honey in each, perhaps this, with the rubber bands and wirecloth caps, will be the cheapest and simplest package we can devise. The honey should be at least partially capped, for long distances.

INTRODUCING QUEENS.

THIS subject may appear to be worn thread bare; but, unless we talk about these things, we will not be able to learn the best way to do them. I have introduced, this season, over 125 queens. I have adopted various plans, and have become thoroughly convinced that caging is not at all times the safest or most expedient way. In this, as in other things, I have been compelled to change my mind.

I commenced this season, by having my queens fertilized in nucleus swarms; and, when laying, I caged and introduced them to the swarms where I wanted them. I removed the old queen, sometimes, the day before, but more frequently at the same time, and saw no difference in this respect in the

new queen's being received. Not having provided cells to supply my nuclei immediately, I economized the strength of my little swarms by placing the old laying queens in them, instead of the young Italians removed. Not being very particular about the loss of these old black and hybrid queens, I threw them in, in the most reckless manner, at the time of taking out the young laying queens, shaking the bees off all the combs into the bottom of the hive with the queen, as I set them back, making the utmost consternation in the household, and, in this confusion, I shut up the hive and left them to get better acquainted.

I don't think I lost a single queen out of 20 or 30 introduced in this way; while of those of which I was so careful, caging them for 24 hours, determining, if possible, not to lose one, quite a number were lost. I will say here, that my nucleus swarms had been strengthened from time to time from other swarms, until many of them required a full set of hive frames, and were quite fair swarms. The success of this plan, then, was not altogether on account of swarms being light. Finding this to succeed so well with my old black and hybrid queens, I resorted to the same plan of introducing my young Italians, with equally good success. The results to the nuclei were, before I had occasion to use them again for young queens, the combs were well filled with eggs and brood, and they are now heavy swarms.

HOW I INTRODUCED AN IMPORTED QUEEN.

When we get an imported queen, I suppose we all feel a little uneasy about her until we find her filling up the combs with eggs. At least, this is my experience. Having already learned that a day or two in time wasted did not necessarily secure the safety of the queen, I decided to spend no unnecessary time in introducing her royal highness, through prison gates, to her future subjects. Accordingly I went to the swarm to which I wished to introduce her, which had been queenless for some time, and took out a card of brood and bees. This was just at night. I carried it into the bee house, and placed it in the window, away entirely from other bees, and liberated the queen quietly in the midst of a group of young bees. I watched her closely for 15 or 20 minutes until it was evident, from the regard shown her, that she was fast making friends *on this side of the water*. I then took the card of brood to the hive, placed it in, at one side, separating it from the rest of the swarm by a division board. I raised the frame half an hour after, peeped carefully in, and saw her in the midst of a circle of devoted friends. Next morning, I again called on my foreign lady. By that time, they seemed to understand each other quite well. In two days after, I took out the division board and all has gone well since.

My nuclei have been supplied mostly from the lamp nursery, with young queens introduced as soon as hatched, either at the entrance, or by dropping them at the top of the frames. This plan has been mostly successful, but not entirely so, as a few have been rejected. It may be, however, on account of some deformity or imperfection, as they have to pass the closest examination. I think the better way is to lift out a frame, and place them carefully in the midst of the bees.

H. R. BOARDMAN, (Bee Master.)

Ea. Townsend, O., July 19, 1879.

The above agrees substantially with my experiments, as you will see on page 301.

The contents of this leaf and the one following are not directly connected with the subject of bee-culture. On this account, I make no charge for them, and, if you choose, you can cut them out without reading.

Our Homes.

Blessed is the man that endureth temptation: for when he is tried, he shall receive the crown of life, which the Lord hath promised to them that love him.—Jas. i. 12.

MUCH has been said of late, of the change wrought in individuals, by conversion,—of the sudden change in life from bad to good, of the giving up of old and bad habits and the forming of new and better ones, and of the changing at once and for good, from a life of selfishness and shame, to one of earnest and faithful effort for the good of others. The reforms of this kind in connection with Moody's work, and, a little later, with that of Francis Murphy, fairly stirred our nation to its very centres. It was not only sceptics that inquired if all these thousands of people would hold out, but many Christian people queried very anxiously, whether it could really be that people were becoming better at such a wholesale rate as this. It was not in Pittsburgh alone, but the Murphy movement spread all over our land, and brightened and made joyous thousands of homes. Did this work really stand? I presume almost every one of you have heard the doubting ones laugh heartlessly, as they mention how A, B, and C had gone back to their old habits, even after all the talking they had done; and I have been told, although it may not be wholly true, that even in Pittsburgh, where such a mighty work was done, there is now hardly a trace of it left, and that more liquor is sold than ever before. While I cannot for a minute concede that no good was done, and that the movement was not productive of good, and great good, too, on the whole, I am well aware of the damage done to many a weak brother, by seeing those go back on whom he relied with the utmost confidence. In fact, if I am not careful, I myself am in great danger of losing faith in the cause of religion when I look at those who have made such earnest and, apparently, honest efforts, but who are slowly dropping back into their old ways, as the years pass by. It is in behalf of these poor brothers I would speak to-day.

You have probably seen those who have by conversion had their appetite for drink removed as if by a miracle; and, very likely, you have heard such individuals talk. The people of the world are very loth to believe this, and they often say, "Well, let us see if they live it out." Now, my friends, if such Christians do not live it out, it is very little use to claim that God does so help those who come to him, and it is nothing strange, if the all important faith in God that is needed in all reformatory work, should be lacking. While I firmly believe that God does so take away temptation in answer to prayer, I am quite sure there has been a great perversion of this matter.

Quite a number of the young men with whom I have been intimate, have taken up the idea, and have claimed that the appetite for drink was gone, and that they *knew* they should never want it again, at all. All these, so far as I know have "gone back," to use a common expression. In one sense, it may do to say we know we shall never go back to our old life, but it should be said trusting in God to keep us, and not trusting in our weak selves. This point I can in no way illustrate so well, as by speaking of some of my own trials and conflicts.

I am aware that it will be an easy matter for those so disposed to put a wrong construction on what I am about to say, and I am aware that I am treading on delicate ground, in some respects. I would therefore ask you to take what I say in the spirit in which it is spoken, simply and honestly; if you pervert it, and imagine something I do not say, the responsibility rests on you, and not on myself.

I have before remarked that, from childhood, I have had a natural fondness for the other sex. There has seemed to be something in woman's nature, that appeals to me; and, all my life, in many things, I have felt more at home, as it were, in the company of my mother and sisters than with my father and brothers. In business matters, the girls in my employ seem to catch the spirit of my work, with more readiness than do the boys; the neatness and order which I have found, by experience, to be so necessary to carry out my plans, they fall in with more readily, and in regard to such habits as tobacco, intemperance, late hours, and fast ways, I have sometimes thought I was womanish in my views in these matters, compared with the rest of my sex. Of course, then, this same trait would make me patient and kind to the girls and women who so cheerfully take up any kind of work I may choose to set them at. It should make me so, to be consistent, but God only knows how earnestly I have prayed that I might remember they are women, and, therefore, in many things, they cannot be expected to know all about business that a man would know, and that I might have a broad charity for them accordingly.

I have told you how, during all my life, before I became a converted man, I seemed to lack, towards the other sex, that kind of honesty which I had in money matters. That you may get my idea exactly, no more and no less, I will mention a little incident. I was once traveling on a stage line, through a new country. We had a long day's ride through the woods, and, as a matter of course, I got pretty well acquainted with my half dozen fellow travelers. Suppose one of my companions had carelessly left his pocket book on the seat beside me; would there have been any temptation to take it? To be sure not, for money I had not honestly earned, I could not have enjoyed. Had there been a million of dollars hid in the woods near by where we were passing, and had it been known only to myself, I do not believe it would have tempted me seriously. Is this anything to boast of? No; and no credit is due me for it. It was, or is, a vir-

ture I possessed naturally, to a certain extent, and had never cost me any struggles or deprivations. By my side, sat a young widow; I was a good moral man, a very good moral man; in fact, I often took great pride in telling how I treated every body as I would be done by. How about the widow? I will tell you. As soon as I gathered from her conversation that she was a widow, and alone, I scrupulously concealed the fact that I was a married man, but devoted the whole beautiful autumn day to making myself agreeable to her. As the roads were bad, I got out and gathered flowers and winter-greens for her, brought her water when she was thirsty, and, by the time we reached our destination, if she did not feel that I esteemed her above all women, it was not because I had not tried to make her feel so. Had it been my wife, instead of an utter stranger, what would have been my behavior? I thank thee, O my Savior, I thank thee that those days are passed and gone; that that old, wicked self has been made over by thy love. I thank thee, too, dear Jesus, that I can feel a thrill of joy now, when I think that no other woman on earth could now give me the pleasure during such a trip, as the dear wife thou gavest me.

I have told you of the change in my life,—how I was cleansed from this weakness, almost as by a miracle, and was changed, as it were, in an hour. There is, however, one part I did not tell, or, at least, but imperfectly. As years passed on after my conversion, I was somewhat startled to feel that God's purpose seemed to be, after I had grown strong and firmly rooted in my faith in him, to try me again with temptation. Please, dear reader, do not, at this point, form any hasty conclusions of your own, or accuse me of inconsistency, but take just what I say, and no more. My especial weakness, in years past, seemed to be new faces; not always new ones exactly, but faces I had not heretofore noticed, or perhaps those I had not happened to get acquainted with. It was just about 4 years after my conversion, when I began to be aware that old temptations were getting a foothold; that is hardly the word either, for they got no foothold, unless it was in my thoughts, for I can scarcely remember an action that could well be called a wrong one. Perhaps, in passing along the street, my eye would unconsciously catch a new face, one a little different from any I had ever seen before, and afterwards, at my work, this face would suddenly rise up before me; before I knew it, when among people, I would be looking for that face again. If, by accident, I got acquainted with the owner, by and by, I would begin to look for that new acquaintance. Here conscience began to hold up a warning; for I knew it was in just that way that I had started wrong in years before. Alone, by myself, I knelt in prayer, and asked God to keep me from such a fate as going back to anything remotely approaching the old life. I was startled by seeing the face before me even while I knelt in prayer. I promised God to root out this new phase of temptation, if it took all my time and all my strength to do it. When I passed that person, I turned

my head the other way, or took another street. If my thoughts turned that way, and I could not master them otherwise, I left my work and went off. Here a queer feature presented itself. I knew death and ruin were before me. I knew, if I gave way to this temptation, I should lose my love for the Bible and the prayer meetings; and, in fact, I had begun even already to feel the Bible a restraint. How quickly yielding in the very least to temptation weakens our faith in God, and deadens his love in our hearts. In spite of all this, and knowing all this, a strong disposition grew up to trifle with what, in one phase, seemed a new phenomenon. I knew it was Satan, and I clearly saw the cloven hoof which he was attempting to hide; but an almost ungovernable curiosity came up, to watch him, and see how he worked such things. You know what a passion I have for exploring new fields; I presume my curiosity, too, is rather more than average. Well, after passing this individual, say on the other side of the street, and keeping my thoughts and eyes in some other direction, as well as I could, until I almost began to feel a thrill of victory, by some strange perversion, I would turn and look back. What inconsistency! How could I kneel in prayer, and ask God to help me, after conduct like this? I fought and prayed the harder, but Satan worked harder, too. That great wall that God Almighty had raised up was beginning to shake. Satan was beginning to scream in my ears that even God and the Bible could not save me. To wind up with, he, too, massed all his powers for a grand finale. In turning a corner suddenly, I came full upon the person I had sought to avoid, and received a pleasant good natured smile, as a matter of course. What a simple trifling matter! A common place everyday occurrence. What do you suppose Satan made of it? In that smile, occupying scarcely a second, he had managed to weave in, as it seemed to me, more beauty and loveliness than the world contained outside, and that face seemed so much the centre of the universe that it seemed as if it were no more than justice that I should bow down and worship it, forgetting God and every thing else.

"Why, you poor, miserable fool, you had gone crazy," I can imagine some of my friends saying. I agree with you, my friends, I had gone crazy for about a second, and I was in danger of going crazy for the rest of my life. While I am writing, the following verses occur to me:

And the devil said unto him, All this power will I give thee, and the glory of them: for that is delivered unto me; and to whomsoever I will, I give it. If thou therefore wilt worship me, all shall be thine.—Luke iv. 6, 7.

Now read the reply that Jesus made:

And Jesus answered and said unto him, Get thee behind me, Satan: for it is written, Thou shalt worship the Lord thy God, and him only shalt thou serve.—Luke iv. 8.

And the first commandment:

I am the Lord thy God, which have brought thee out of the land of Egypt, out of the house of bondage.

Thou shalt have no other gods before me.

Thou shalt not make unto thee any graven image,

or any likeness of *any thing* that is in heaven above, or that is in the water under the earth:

Thou shalt not bow down thyself to them, nor serve them: for I the Lord thy God *am* a jealous God, visiting the iniquity of the fathers upon the children unto the third and fourth *generation* of them that hate me:

And shewing mercy unto thousands of them that love me, and keep my commandments.—Ex. xx. 2, 6.

I went off where I could be alone, and, on bended knees, asked God to help me, and also almost demanded of him why I had been thus allowed to fall into Satan's toils. I was frightened, but felt, at once, that I was not deserted, and that this trial had been allowed that I might not become proud, and think I did not need to go to him in prayer, with any very special earnestness. I felt then, too, that I needed some safe adviser, some one to whom I could talk. Is it not strange, that very often the only condition, almost, under which we may be saved, is by going to some one else? To whom do you suppose I felt impressed to go? Why, my wife, of course. Why had I not done so before? Well, I was ashamed to do so, as well I might be, and, besides, by some queer inconsistency, I did not want her to know anything about it. I knelt by her side that night, and told her of all these temptations. It seemed to me as if I wanted to get away down into the cellar when I confessed to any such foolishness, or away down under the cellar, if there were any such place. After putting it out loud, in words, the utter ridiculousness of the whole idea began to show out. Of course, Satan fled, and I was safe. On meeting the person afterward, I could but wonder that my ordinary good sense had ever so utterly deserted me for so many days, or weeks. Now Satan was hanging around still, for it was not long before another face was presented to me. I say presented, for it was all Satan's work, and his alone. I am happy to say, that the other sex, through all my life, have invariably treated me as they would treat a gentleman, and a Christian, and I know that more than one of my good friends will not only be pained, but will feel loth to believe my own statements. When this next temptation presented itself, I went to my wife at once. Satan tried still another, but without giving him a moment's respite, I took it to my wife, and to my God. I seemed to have no agency in this matter, and was as much surprised almost as my wife; for his attacks seemed, for all the world, like a lot of robber bees that have come unexpectedly into the apiary, first trying one hive and then the other, and only desisting when they found themselves baffled and beaten at every turn. This conflict lasted perhaps two months, or more; and, during the whole time, I felt that it was drawing me nearer to my Savior, day by day. I began to realize in truth, what it was to be thankful for trials. I did not know then there were any promises in the Bible such as I have given in my opening text, to those who endure and hold out, and when, in one of our teachers' meetings, they were brought out, you cannot think how thankful I was that I had fought Satan at every step, and had, with God's help cut him off, root and branch. You can

scarcely think with what joy I grasped the following verse from Revelations, the book that I had almost skipped because, when we read it through by course, there seemed nothing in it we could understand. See if you can understand the following, after what I have been writing:

He that overcometh, the same shall be clothed in white raiment; and I will not blot out his name out of the book of life, but I will confess his name before my Father, and before his angels.—Rev. iii. 5.

And this:

Him that overcometh will I make a pillar in the temple of my God, and he shall go no more out; and I will write upon him the name of my God, and the name of the city of my God, which is new Jerusalem, which cometh down out of heaven from my God; and I will write upon him my new name.—Rev. iii. 12.

And this:

And he that overcometh, and keepeth my works unto the end, to him will I give power over the nations:—Rev. ii. 26.

I passed through these experiences, and with God's help I did not slip back, and I did not get crazy. Those of you who think this a very singular experience, and one not common to humanity, should reflect a moment on the many that fall in the same, or in a similar way. How the skeptics take up a case where a church member falls: and when a minister of God is found out, and admits that he has led an impure life, it stirs almost a nation of people. Shall we seek no remedy for such evils? Shall poor humanity keep falling in this way, without a note of warning being lifted up? Shall nothing be done to counteract the tendency, already gaining a strong hold, to believe that one who is even a *servant* of God cannot expect to stand against all kinds of temptations?

Those of you who have never been slaves of Satan can have little idea of what temptations are. Those who have broken off the habits of tobacco, opium, strong drink, and the like, can tell you something about it. The point that the simplest and most unimportant trifle may be made use of by Satan, is one I wish to call attention to, and to warn you against. I have heard tobacco users say that seeing a man put his hand in his pocket was enough at times to drive them almost crazy. To the drinker, the smell of one's breath who had been drinking, the sight of a sign where the forbidden article was sold, faces which had been with him during a debauch, familiar spots, etc., will prove temptations almost irresistible. Especially the smooth pleasant guise in which Satan makes his appearance is very apt to deceive. I will give you one instance.

I remember being busily and innocently engaged, one evening, at peace with myself, and all the world, when, all at once, an influence stole over me, as soothing and entrancing as strains of distant music. As conscience began also a sort of involuntary warning, I began wondering if it were possible that this was Satan's work. Can it be that the road to ruin is ever opened to poor humanity, in guises like this? A few days before, when talking with the boys in jail, in order to illustrate my point, I pulled a little card out of my pocket (from among a lot I was going to take to the smaller ones in

Abbeyville), and pinned it to the wall of the stone room. On the card were these words:

"Blessed are the pure in heart, for they shall see God."

As I sat and meditated how Satan had woven his meshes of sin through and through my very nature, it seemed to me almost hopeless, that I should ever think of being pure in heart at all. What trifling incident do you suppose it was, that Satan had taken advantage of this time? It was simply the sound of a footstep. The owner was one with whom I was scarcely acquainted, yet this involuntary and almost unconscious current of evil had made such headway as to suggest by that faint sound alone, who it was. I spoke, a few lines back, of the way bees would try one hive after another, when they once got started in robbing. Well, suppose they find a hive by accident without any bees to guard it, or but poorly manned. Do you know what an uproar there is almost instantly? How they pour in by the scores, and how the note of warning to the apiarist rises higher and higher, and how they very soon trample down sentries and everything in their mad haste for ill gotten gains? Well, the sins of years past are much like the robber bees. You are to keep guard night and day, and to watch for and expect Satan, under all possible disguises. I have all along laid these charges to Satan, and perhaps in a way that seems to imply that I myself am not to blame at all. I may not have been to blame, or much to blame that these thoughts presented themselves, but I certainly am responsible for harboring them a single instant. If I allow them to remain just long enough to investigate the phenomena, out of any sort of curiosity, I certainly am greatly to blame. In this last incident, I have drawn a picture; please keep it a moment before you.

Since the partial paralysis of my right arm, which I have told you about, when I have had much mental labor to perform, I have, at different periods, had trouble with my health. The numbness in that arm, when aggravated by over brain work, extends to my head, and threatens to stop my work entirely. For years, my wife has been well acquainted with these symptoms, and by insisting that I work less, stay much in the open air, see few visitors, have a plain, simple diet, etc., she brings me through my arduous duties generally in good health. On Sunday mornings, not only are my clothes all in readiness, but my books, papers, cards, pennies, and all these things are each in the right pocket. If much hurried, I often find my shoes, too, neatly blacked; and, just before church, to enable me to go through with two services without my dinner, a dish of beef tea is handed me, with a kiss, and a prayer that my labors may be blessed. Sometimes I have barely 15 minutes for dinner in order to reach my appointments promptly, and no matter how cross or out of sorts the baby has been, my steak is always ready at the minute I rush into the house, and every need or want is supplied almost before I am aware of such need or want. When I get through, Sunday night, the little family are all looking their best to

welcome papa. The baby has learned to lisp some wonderfully bewitching little sentence during the day, and as we sit beneath the harvest apple trees in our pretty little door yard, it seems that, if there is any one in this world who should thank God, I am that one. Well, what return do I make this faithful wife, for having made my home such a happy one, for having in every way so contributed to my comfort, and, finally, for having restored me to health again by her unremitting care, even when that health had been lost, by sinning against her and my God? I had shown my gratitude, by *listening for other footsteps.*

I cannot tell of the evil and depravity there is in the hearts of others, but I know something of what there is in my own heart. How one can understand Paul after such trials.

For the good that I would, I do not; but the evil which I would not, that I do.—Rom. viii. 19.

After trying to live even one day, without sinful thoughts, we are better prepared to have charity for others. What does my wife say to all this? She says, so long as I am fighting hard against it, and so long as I come to her daily with that frank, honest, confiding look, she has no fear, for she knows that God will take care of me. Nay farther; she does not fear insanity or death, so long as I am trusting Him, and he is holding me up by his strong arm. When I shall cease to trust him, when I shall go back to my old life, and come home dull and abstracted, avoiding her gaze or meeting it with one stony and assumed, then will she fear. The first glimpse she catches of my face as I come home is evidence enough. There may have been battles during the day, and Satan may have suggested evil thoughts, but she is sure none have been harbored.

Why does God allow us to be so tempted? Why does he allow the blasts of winter to bend and twist the sturdy oaks? Is it not that they may become the toughest and most enduring timber known in the world? Well, I told you in the first of this chapter, that I had many of the other sex in my employ; it is my prayer day by day, that these young people, both boys and girls, may be pure in heart. They are scattered all about the building and grounds, but my eye is almost hourly upon them. I know they are far more faithfully cared for than would have been the case, had my life been otherwise. Is it not possible that God has been trying me by fire, to see whether it would do to entrust me with human souls? "He that is faithful in a few things shall be made ruler over many things."

Already I begin to catch glimpses of a victory over this great weakness of my life, and already do I see this perverted trait of my character begin to mold itself over into something pure and holy. In this, my native town, reside my own sisters, and I have also a daughter, full grown nearly; as I have passed along the streets, I have prayed most earnestly, that God would give me exactly the same love and admiration for all womankind, as I have for these sisters and daughters; that He, in looking into my inmost heart, should discover no thought or

momentary impulse for the one, that I would not have for the other. Nay farther; that I should be inclined to take just as much pains to be polite and attentive to the young men as I pass them, as I would to the young women. When this prayer began to be answered, and when I could really feel the same pleasure in passing a well behaved and well dressed young man, as in passing a young lady, I felt like kneeling down in the street, and thanking God for his mercies to such a poor sinner as myself. Farther still; this newly revived love of God in my heart toward my fellows, since those two months, has been widening and deepening, and taking in all humanity, young and old, and enabling me to see the human soul, as it were, irrespective of age and sex, and to rejoice in any chance that offers of helping or advising any one, young or old.

During this siege of temptation, I received great help from breathing a simple prayer day and night, even when walking along in the streets. It was something like this: "Let thine image, O my Saviour, take the place of all and every thing on the face of this earth. Help me, O Lord, to choose thee in place of every thing Satan may offer or present, and may the inmost thoughts of my heart be of things eternal, that do not pass away, and not of the foolish bumbles of this earth."

Some of you will doubtless imagine this an easy task, if you have not known what it is to say with the Psalmist,—

Save me, O God; for the waters have come in unto my soul.

I sink in deep mire, where there is no standing: I am come into deep waters, where the floods overflow me.—Ps. lxxix. 1, 2.

PRISON LITERATURE.—RULES FOR SENDING.

Bro. Matthews gives the following hints to those having reading matter to send to prisoners:

1st.—Do it up in 20lb. packages; if over 20lb. are in one package, it will not come free.

2d.—Label each package, Prison Dept., Western Seaman's Friend Soc., Onarga or Gilman, Ills. If to come by Am. or Adam's Express, Onarga; if by U. S. Ex., Gilman.

3d.—Never send a package, until you have first dropped me a postal, telling me how many packages you have to send, the name of your Ex. Co., and the name of the town where package is to be sent from. Remember, if package is to come by Am. Ex., it can not come till you receive a *frank* to bring it free; if by Adam's or U. S. Ex., I will have to give directions as to where it is to be billed, so as to come free.

If these 3 rules are carefully followed all will go right. W. D. A. MATTHEWS.

Bro. Matthews further says.

I have often felt that, if mistakes keep occurring, after all the precautions taken, the express companies will cancel all my favors, and then I will be crippled in my mission. So please *impress on every one, to conform closely to my requests.*

Let us see to it, my friends, that our carelessness does not hinder and seriously cripple the very work we are trying to aid.

A LB. of young Italians, with a dollar queen, turned loose on three or four empty combs, make a pretty fair little swarm, and they will go to work at once, like little heroes. If started this month and kept constantly rearing brood up to the highest notch, by feeding, if they are getting no honey, they should make a good colony before winter. Price \$2.60.

Honey Column.

Under this head, will be inserted free of charge, the names of all those having honey to sell, as well as those wanting to buy. Please mention how much, what kind, and prices, as far as possible. The prices quoted in our cities for honey are, at present, too low, to make it worth while to publish them. As a general thing, I would not advise you to send your honey away, to be sold on commission. If near home, where you can look after it, it is often a very good way. By all means, develop your home market. For 25cts., we can furnish little boards to hang up in your door yard, with the words "Honey for Sale" neatly painted. If wanted by mail, 30c. extra for postage. Boards saying "Bees and Queens for Sale," same price.

I HAVE 2,000 lbs. of nice clover and basswood, extracted honey that I will sell for 8 cts. by the barrel or keg, the purchaser to pay for barrel and freight. I have 2,000 lbs. of nice, light, comb honey which I will sell, in 100 lb. lots, at 15 cts. It is in 2 lb. sections. I will sell bees at \$1.00 per lb., up to 200 lbs., or perhaps more. I suppose no queens are furnished. I will furnish hybrids or dollar queens at 50 cts. R. S. BECKTELL.

New Buffalo, Berrien Co., Mich.

Wanted one barrel, thick, white, clover honey. Write me, with lowest cash price.

J. M. BROOKS, Box 64.

Columbus, Ind., July 3, 1879.

I have 15 bbls. of honey that I will sell at 8 cts. per pound, and throw in the bbls. PAUL L. VIALLOX.
Bayou Goula, La., July 23, '79.

CHICAGO.—Honey—Choice, in single comb boxes, 9@13c. Extracted, 6@9c.

Bees-wax.—Choice, yellow, 24@26c. Darker grades, 15@20c.

NEW YORK.—Honey—Best comb, 11@13c. Extracted, 7@8c.

Bees-wax.—Choice, 25c.

CINCINNATI.—Honey—Best, in single comb boxes, 10@12c. Extracted, 8@10c.

CALIFORNIA.—Honey—Comb, 6@7c. Extracted, 4@5c.

Bees-wax.—Best, 30@31c. For darker colored, 20@22½c.

THE sweet pepper is almost in bloom, in our honey garden.

Do not send me any more queens until I give you further notice.

I HAVE to-day, July 29th, 4416 subscribers, for which I know I ought to be happy.

I WILL pay in trade, 25cts. for wax; but, as I have several tons now on hand, I cannot pay more than 22cts., the advertised price, in cash.

In our next, will appear an engraving of R. Wilkins' California apiary, with a description by "Galup." See if we do not show you that there is, at least, one nice apiary in Cal.

We have had several importations of imported queens, but not quite enough to fill all orders. Of the last lot, only 4 were alive. We have now sent orders to three other persons in Italy, besides Tremontani, and hope soon to have some on hand all the time, if it be a possible thing.

ALL experiments with the metal electrotypes for dipping fdn., I am obliged to pronounce a failure. I can make fdn. that the bees will use, it is true, but the process is slow, and the work not nice. Our \$22.00 fdn. mill, both in rapidity and quality of the work, far exceeds anything I have been able to get hold of, and I have wasted a great many dollars in experiments. To prevent sagging of both the fdn. and frame, the thin board base mentioned on page 317 is far ahead of anything I have before seen, but it takes too much wax for flat bottomed cells, and I have not yet devised a satisfactory method of indenting the thin board just right.

QUEENS FOR AUG. & SEPT.

I will deliver Italian queens free to all parts of United States and Canada, at the following prices:

Tested Queens, each.....	\$2 00
Warranted " "	1 50
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Safe arrival guaranteed.

8 D. S. GIVEN, Hoopston, Ill.

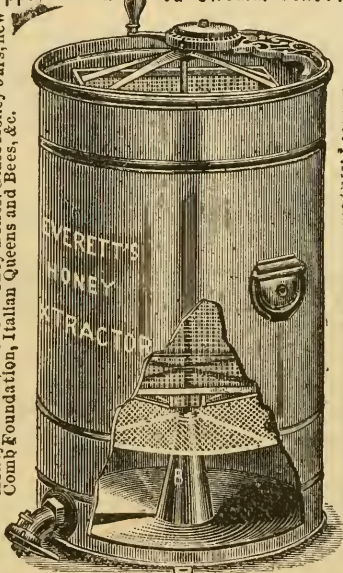
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0	Cards, queen registering, per doz.....	06
0	" " " per 100.....	40
60	Chaff cushions for wintering (see A B C).....	30
9	" " without the chaff.....	15
40	Chaff cushion division boards.....	20
2	Cheese cloth, for strainers, per yard.....	06
10	Clasps for transferring, package of 100.....	25
	Climbers for Bee-Hunting.....	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles.....	1 50
	Comb Foundation Machines complete \$22 to 100 00.....	
20	Corners, metal, per 100.....	50
20	" " top only, per 100.....	60
15	" " bottom, per 100.....	40
	On 1,000 or more a discount of 10 per cent will be made, and on 10,000, 25 per cent. The latter will be given to those who advertise metal cornered frames.	
	Corners, Machinery complete for making \$250 00.....	
12	Duck, per yd.....	20
15	Enameled cloth, bees seldom bite and propolize it. Per yard, 45 inches wide, 20c. By the piece, (12 yards).....	18
	Extractors, according to size of frame, \$6 50 to 10 00.....	
	" " inside and gearing, including honey-gate.....	5 00
	" " Hoops to go around the top.....	50
	" " " per doz.....	5 00
5	Feeder, Simplicity, (see price list) 1 pint.....	05
7	Feeders, 1 quart, tin.....	05
4	The same, half size.....	10
25	The same, 6 qts, to be used in upper story.....	50
2	Files for small circular rip saws, new and valuable, 20c; per doz, by express.....	2 00
	" The same, large size, double above prices.....	
1	" " 3 cornered, for cross-cut saws, 10c; doz.....	1 00
5	Frames with sample Rabbit and Clasps.....	10
15	Galvanized iron wire for grapevine trellises per lb. (about 100 feet).....	20
25	Gates for Extractors fitted for soldering.....	50
50	Gearing for Extractor with supporting arm.....	1 25
0	GLEANINGS, Vol's I and II, each.....	75
0	" " Vol's IV and V, each.....	1 00
0	" " Vol. III, second-hand.....	2 00
0	" " first five nearly bound in one.....	5 00
0	" " " unbound.....	4 00

See from 50c to \$6 25; for particulars see

	ace list.....	
	ey Knives, straight or curved blade.....	1 00
	" " ½ doz.....	5 00
	" " ½ doz by Express.....	4 75
	Labels for honey, from 25 to 50c per 100; for particulars see price list.....	
	Lamp Nursery, for hatching queen cells as built.....	5 90
0	Larvae, for queen rearing, from June to Sept.....	25
15	Leather for smoker bellows, per side.....	50
0	Lithograph of the Hexagonal Apiary.....	25
0	Magnifying Glass, Pocket.....	50
	" " Double lens, brass on three feet.....	75
0	Medley of Bee-Keeper's Photo's, 150 photo's.....	1 00
12	Microscope, Compound, in Mahogany box.....	3 00
	Prepared objects for above, such as bees' wing, sting, eye, foot, &c., each.....	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard.....	10
10	Opera Glasses for Bee-Hunting.....	5 00
18	Paraffine, for waxing barrels, per lb.....	25
0	Photo of House Apiary and improvements.....	25
60	Pump, Fountain, or Swarm Arrester.....	8 50
0	Queens, 25c to \$6 00. See price list.....	
1	Rabbits, Metal, per foot.....	02
	Salicylic acid, for foul brood, per oz.....	50
10	Saw Set for Circular Saws.....	75
0	Screw Drivers, all metal (and wrench combined) 4½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws.....	
0	Scissors, for clipping queen's wings.....	40
6	Section boxes, fancy, hearts, stars, crosses, &c., each.....	05
	Section Honey box, a sample with strip of fdn. and printed instructions.....	05
	Section boxes in the flat by the quantity, \$6 00 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive, see price list.....	10
18	Seed, Alsine Clover, raised near us, per lb.....	30
	" " Catnip, good seed, per oz. 10c; per lb.....	1 00
18	" " Chinese Mustard, per oz.....	15
0	" " Mellilot, or Sweet Clover, per lb.....	35
48	" " White Dutch Clover, per lb.....	35
18	" " Motherwort, per oz. 10c; per lb.....	1 00
18	" " Mignonette, per lb. (20c per oz).....	1 40
	" " Simpson Honey Plant, per package.....	05
	" " " per oz.....	50
18	" " Silver Hull Buckwheat, per lb.....	75
	" " Common " peck, by Express.....	50
18	" " Summer Rape. Sow in June and July, per lb.....	15
	A small package of any of the above seeds will be sent for 5 cents.	
5	Sheets of Enameled cloth to keep the bees from soiling or eating the cushions.....	10
	Shipping Cases for 48 section frames of honey.....	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c.....	
1	Slate tablets to hang on hives.....	01
	Smoker, Quinby's (to Canada 15c extra) 1 50 & 1 75.....	
5	" " Doolittle's, to be held in the mouth.....	25
	" " Bingham's..... \$1 00; 1 50; 1 75.....	
25	" " OUR OWN, see illustration in price list.....	75
2	Tacks, tinned, per paper, (two sizes).....	05
5	Thermometers.....	20
0	Veils, Bee, with face of Brussels net, (silk).....	75
	The same, all of grenadine (almost as good).....	50
	Veils, material for, Grenadine, much stronger than tarlatan, 21 inches in width, per yard.....	20
	Brussels Net, for face of veil, 29 inches in width, per yard.....	1 50
	Wax Extractor.....	3 50
	Copper bottomed boiler for above.....	1 50
5	Wire cloth, for Extractors, tinned, per square foot.....	10
2	Wire cloth, for queen cages.....	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively.....	
3	Painted wire cloth, for shipping bees, 14 mesh to the inch, per square foot.....	05
	All goods delivered on board the cars here at prices named.	
	A. I. ROOT, Medina, Ohio.	

W. Z. HUTCHINGS, Jr.,

ROGERSVILLE, GENESSEE CO., MICH., U. S. A.

Makes a *Specialty* of rearing **DOLLAR QUEENS.**

All queens bred from an imported mother, and the cells built in full colonies. All queens in the apiary (except the imported queen) are daughters of imported mothers. No black bees in the vicinity. Single queen \$1.00; six queens for \$5.00; twelve or more, 75 cts. each. Safe arrival, by express guaranteed. He has a stock of queens on hand, and can fill orders *promptly*. 8-10d

SEND \$1.00 to E. B. Plunket, Atlanta, Ga., and receive a nice untested queen by mail.

NOW IS THE TIME TO PROVIDE

CHAFF HIVES

FOR YOUR BEES TO WINTER IN.

They not only pay their cost almost every winter, but they pay just as well for summer use. See what a friend writes on a postal.

Mr. Root:—What is your price for chaff hives, already filled with boxes, such as Wm. T. Seal, of Chadd's Ford, got of you. Send me price list of hives, and price of 50 chaff hives. *Bees have done well only in this kind of hive this summer, on account of cold. It was too cold, in other hives, to stay nights in boxes. I want the frames to hold the one lb. boxes.* J. & J. T. WILLIAMSON.

Dilworthtown, Chester Co., Penn., Aug. 24, '79.

For 50 chaff hives or more, ordered during this present month, every thing in the flat, including nails and tin roof, I will make the price \$1.30 each. This is for the hive for winter.

For prices of the inside work (which you will not need until another season), also for prices of hives set up and painted, and for hives in lots less than 50, see price list.

A. I. ROOT, Medina, Ohio.

WELL-AUGER.

Ours is guaranteed to be the best in the world. Catalogue free. 8-10
W. W. GILES, 149 Clark st. Chicago, Ill.

I WILL sell, this fall, 100 stands of Black Bees, at \$1.50 per stand. They are in Langstroth, American, and International hives, which are well painted. **ROBT QUINN**, Shellsburg, Benton Co., Ia.

SAVE YOUR FOWLS,

and get price list of Italian Bees, Fancy Poultry, &c., by addressing **J. R. LANDES,**
9d Albion, Ashland Co., O.

GOLDEN ITALIANS!

We have them in their purity. Circulars and Price List Free. **J. M. BROOKS & BRO.,**
4-9 Columbus, Ind., Box 64.

NOTICE.

I will sell 100 colonies of bees during the month of September. For prices and particulars apply to **GEO. GRIMM**, Jefferson, Wis.
8-9d

A FEW, RELIABLE, \$1.00 QUEENS AT \$1.00;
Tested, \$2.00. Bees \$1.00 per lb. Heavy combs, 12x14 in., shipped with bees, 20 cents each.

H. R. BOARDMAN, East Townsend,
8-10d Huron Co., Ohio.

CHEAP BEES.

Fifty colonies @ \$4. **E. A. GASTMAN,**
9 Decatur, Ills.

Names of responsible parties will be inserted in either of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per year.

\$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with * use an imported queen mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent before July 1st. If wanted sooner, see rates in price list.

*E. W. Hale, Wirt C. H.	W. Va.	1-12
*A. I. Root,	Medina, Ohio.	
*H. H. Brown, Light Street,	Columbia Co., Pa.	7-9
*E. M. Hayhurst,	Kansas City, Mo.	1-12
*J. M. C. Taylor,	Lewiston, Fred. Co., Md.	1-12
*Paul L. Viallon,	Bayou Goula, La.	8td
*J. Oatman & Sons,	Dundee, Kane Co., Ill.	2-1
Miller & Hollam,	Kewaskum, Wash. Co., Wis.	4-4
*D. A. McCord,	Oxford, Butler Co., O.	4-9
*J. T. Wilson,	Mortonsville, Woodford Co. Ky	4-4
*S. D. Moore,	Atlanta, Ga.	5-10
*Amos Johnson,	Sugar Grove, Warren Co., Pa.	5-10
H. S. Elkins,	Kennedy, N. Y.	5-10
J. L. Bowers,	Berryville, Clarke Co., Va.	7-12
*J. H. Martin,	Hartford, Wash. Co., N. Y.	7-9d
*T. M. McGaw,	Monmouth, Warren Co., Ills.	7-6
*S. W. Salisbury,	Kansas City, Mo.	7-9
*A. W. Cheney,	Orange, Franklin Co., Mass.	8-9d
Owen Southgate,	Smithville, Burl. Co., N. J.	8-10
A. L. Klar,	Pana, Christian Co., Ills.	8-9d
*King & White,	New London, O.	8td

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root,	Medina, Ohio.	
H. Seovell,	Columbus, Cherokee Co., Kans.	4-3
Nichols & Elkins,	Kennedy, N. Y.	5-10
P. L. Viallon,	Iberville Parish, La.	9td

Bees For Sale.

ONE DOLLAR PER LB.

Names inserted in this department the first time without charge; afterward, 20c each insertion, or \$2.00 per year.

Those whose names appear below signify that they are willing to furnish bees, without hives, during the coming month, at \$1.00 per lb., the purchaser being required to bear all express charges. Safe arrival guaranteed.

[Express Cos. have promised to return cages to owners free of charge, if made very light.—Ed.]

H. R. Boardman,	East Townsend, Ohio.	8-10d
J. E. Vanmeter,	Emison, Knox Co., Ind.	9-10
A. I. Root,	Medina, Ohio.	

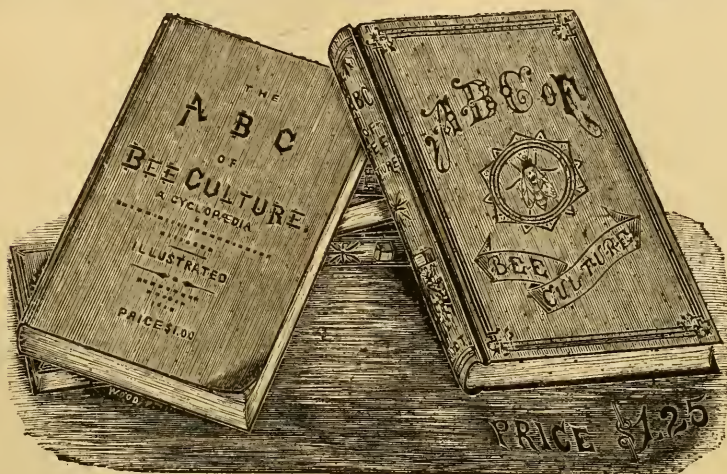
IMPORTED QUEENS

Just received. Price \$5.00. Safe arrival guaranteed. **MISS M. ANDREWS**, Medina, Ohio.

ITALIAN BEES FOR SALE.

I will sell 100 colonies of pure Italian Bees, in September and October, for \$3.50 per colony. Bees are in movable frame hives. **W. A. EDDY,**
9 Easton, Adams Co., Wis.

THE A B C of BEE CULTURE.



FOR several years, it has been my ambition to be able to write a book on bee culture, so clear and plain that not only any boy or girl, but even an old man or woman, with the book and a hive of bees, could learn modern bee culture, and make a fair, paying business, *even the first season*. This is a great undertaking, I grant; and it will require some one with far greater wisdom than mine, to do it the first time trying. After watching beginners, and answering their questions almost constantly, for years, I came to the conclusion, that the only way to do it was to "cut and try," as carpenters say, when they can't get the exact dimensions of the article they wish to make.

To cut and try on the A B C book, I have invested over \$2,000 in type, chases, etc., sufficient to keep my whole book standing constantly in type, that can be changed at a moment's notice. The books are printed only as fast as wanted, and just as soon as I see I have omitted anything, or have made any mistake, the correction is made before any more books are sent out. To show you how it works, and how it succeeds, I will give you an illustration.

A beginner writes to know if it is of any use to keep a queen, after she is eighteen days old and does not lay. Now I know very well that a queen should lay when from ten days to two weeks old; and also, that they will sometimes not commence until they are three weeks old, and then make good queens. Now, although I directed that they should be tossed up in the air, to see if their wings were good, when they did not lay at two weeks of age, I did not say, if their wings proved to be good, how long we should keep them. If I could spare the time of the colony, I would keep a good looking queen that could fly well, until she is 25 days old; if crowded for a place to put cells, I would kill all that do not lay at 18 or 20 days old.

I have just put the above in the A B C, and that is just the way I am going to keep doing. You see, you beginners are, ultimately, to build up the book.

Hope the new shop will be as great a success as the A B C has been; for I consider it of more benefit to persons going in the business than anything yet published.

R. N. MCINTYRE.

Daytona, Fla., Dec. 28, 1878.

The book, as it is now, contains about 275 pages and about 175 engravings. It is furnished complete in one, or in 5 different parts. The contents and prices are as follows:

Part First, will tell you all about the latest improvements in securing & Marketing Honey, the new 1 lb. Section Honey Boxes, making Artificial Honey Comb, Candy for Bees, Bee Hunting, Artificial Swarming, Bee Moth, &c., &c.

Part Second, tells all about Hive Making, Diseases of Bees, Drones, How to Make an Extractor, Extracted Honey, Feeding and Feeders, Foul Brood, etc, etc.

Part Third, tells all about Honey Comb, Honey Dew, Hybrids, Italianizing, King Birds, The Locust Tree, Moving Bees, The Lamp Nursery, Mignonnette, Milkweed, Motherwort, Mustard, Nucleus, Pollen, Propolis, and Queens.

Part Fourth tells all about Rape, Raspberry, Ratan, Robbing, Rocky Mountain Bee Plant, Sage, Smokers, including instructions for making with illustrations, Soldering, Sourwood, Stings, Sumac, Spider Flower, Sunflower, Swarming, Teasel, Toads, Transferring, and Turnip.

Part Fifth tells about Uniting Bees, Veils, Ventilation, Vinegar, Wax, Water for Bees, Whitewood, and Wintering. It also includes a Glossary of Terms and Abbreviations used in Bee Culture.

All are Profusely Illustrated with Engravings.

Nothing Patented. Either one will be mailed for 25c; ½ doz., \$1.25; 1 doz., \$2.25; 40, \$6.00.

The five parts bound in one, in paper, mailed, for \$1.00. At wholesale, same price as GLEANINGS, with which it may be clubbed. One copy, \$1.00; three copies, \$2.50; five copies, \$3.75; ten copies, \$6.00.

The same neatly bound in cloth, with the covers neatly embellished in embossing and gold, one copy, \$1.25; three copies, \$3.25; five copies, \$5.00; ten copies, \$8.50. If ordered by freight or Express, the postage may be deducted, which will be 3c on each 25c book, 10c on the complete book in paper, and 12c each, on the complete book in cloth.

A. I. ROOT, Medina, O.

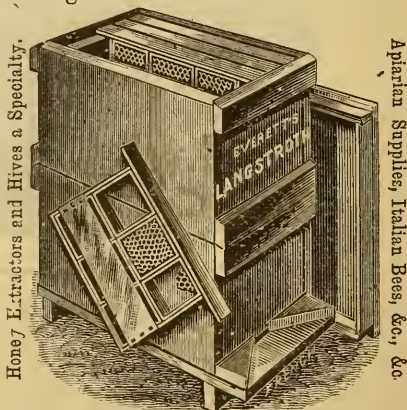
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HAVE to-day, Aug. 28th, 4,403 subscribers, which is 13 less than we had last month. I wonder if I would not better get up a little earlier mornings, and stir around a little faster after I am up. See if I don't do better next time.

16 page Illustrated Circular Sent Free.



EVERETT BROS., 107 Monroe St., Toledo, Ohio.

1879. QUEENS! QUEENS! 1879.

We can supply very large, very yellow, extra prolific, and pure queens, by mail, at \$1.00 each. All from imported mothers. Ten per cent off above prices by the dozen. Circulars giving our method for raising pure queens sent free.

9d H. ALLEY, Wenham, Mass.

LEWIS SECTIONS, ALL IN ONE PIECE.

Owing to the many sizes of sections in use, we can not manufacture largely in advance, and in the honey season we can not supply the demand; so we will sell the celebrated Lewis section, of white bass-wood, nicely finished and sandpapered, of any size up to 6x6 or its equivalent, until Dec. 1st, at the low price of \$5.50 per 1000, cash accompanying the order.

We claim this section to be the finest in the world, and a small boy can put together 6000 per day.

Send 5 cents for model of section.

9d LEWIS & PARKS,
WATERTOWN, WIS.

BUILD UP YOUR LIGHT SWARMS.

A pound of black bees and an Italian Queen for \$1.75. Bees without queens, 75 cts. Queens, \$1.; or with one lb. of Italian bees, \$2.50. J. H. MARTIN,
Hartford, Wash. Co., N. Y.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VII.

SEPTEMBER 1, 1879.

No. 9.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.

Established in 1873.

TERMS: \$1.00 Per Annum in Advance; 3 Copies for \$2.50; 5 for \$3.75; 10 or more, 60c. each. Single Number, 10c.

SCRAPS AND SKETCHES. NO. 9.

EIGHT QUEENS WITH ONE SWARM!

I STOPPED the other day at neighbor Wilson's, and had a chat with him. As he keeps bees, of course we "talked bees."

Says friend W., "Will; how many queens did you ever see with a swarm of bees?"

"I never allow my bees to swarm, consequently I have never had any experience in seeing several queens with one swarm; but I have read of an instance in which half a dozen queens were seen with an after swarm."

"Well," says he, "I am a little ahead of that. Last July, I shook a second swarm in front of a hive, and as they were going in, I saw a queen go in; I thought, 'There, the queen is in all right, any way.' A minute or two afterwards, as I was looking at the entrance, I saw a queen enter, and wondered if the queen had left the hive and was now going in again. Pretty soon, I again saw a queen entering, and then, as the thought struck me that there might be more than one queen, I began to watch in earnest; and, if you will believe it, there were eight queens, in all, that I saw enter the hive."

"Is it possible?"

"Yes; it is not only possible, but it is a fact. Now, sometime, when you are writing an article for GLEANINGS, don't you think you could 'write this up'?"

"Oh yes, certainly," said I, "and now tell me another."

"Tell you another? Well, did you ever have any trouble with

BEES DESERTING THEIR HIVE IN JULY?"

"No; I never did."

"Well, I had a first swarm that had nearly filled its hive with honey and brood, when, one day, they came out and left for parts unknown, without stopping to cluster, or even so much as to say good-bye. There was scarcely a bee left in the hive. Some of the brood was nearly ready to hatch, while there was a large quantity of unsealed brood, which soon began to crawl out of the cells. In order to save it, I was obliged to furnish nurses by taking bees from other hives."

"Is that so? Bees do indeed have strange freaks sometimes, don't they? Well, I must go on over to Mr. Kroll's. Come and see me when you can. Good day."

BEES ON A RAMPAGE.

I had a good "bee chat" at friend Kroll's, and, just

before I came away, Mrs. K. related an experience with their bees, which very nearly equals the "rampage" described in the extract that you give on page 20 of the present volume. One very good thing about it is, she knew what caused the trouble. It was not "snakes." I wish I could describe it in Mrs. K.'s graphic manner, but I will not attempt it, as I should probably make a "botch" of it. The best I can do is to tell it in my own very common place language.

I do not remember the month when it occurred, but it was sometime in autumn, when some boys, who had been playing in the granary, went off and left the door open. It did not take the bees long to find some jars of extracted basswood honey standing in the granary, neither did it take them long to bite holes in the paper that was fastened over the tops of the jars. The honey had been allowed to come in contact with the paper, or perhaps there might have been no trouble. Mrs. K. thinks, when she first discovered the pilfering, pillaging throng, there must have been, at least, a good swarm of them in the building. She closed the door, and in a few minutes the whole front of the building was black with bees. They soon found that they could get no more honey, and then "squads" of them began to come into the house and sting the children, and raise a "rumpus" generally. At about this stage of the proceedings, Mrs. K. drove them out of the house with smoke, and then built a big "smudge" outside, near the door. But the bees were not to be balked in this manner. Their "dander" was up, and they were going to fight something. If they couldn't fight folks, they would fight among themselves; and so they "pitched in," and before they really felt satisfied they had "cleaned out" some half a dozen colonies "sleek and clean." I think Mr. K. made one wrong move, and that was, when a colony was attacked, he would carry it to a new location. I should think that such a course would not only deprive the removed stock of its army of flying bees, which would be its best defenders, but it would mix up and demoralize the bees, and make "confusion worse confounded."

W. Z. HUTCHINSON.

Rogersville, Mich.

AGE OF BEES.

NOTHING in the bee business has given us more pleasure than experimenting to ascertain the different ages of bees, and the different offices they perform at certain ages, when in a normal condition. When these conditions are not

complied with, the colony is thrown out of balance, and then it is that bees will perform nearly every office of the hive at nearly every age, even to laying eggs, which office is usually restricted to the queen. In these experiments, we have found that queens reared under the swarming impulse attain the average age of four years, even under the forcing process of spreading the brood. We had one which lived to be nearly six years old, laying prolifically till within about three months of her supersedure.

The worker bee rarely attains to a longer life than 45 days, during the months of June, July, Aug., and Sept., while those hatched in Sept. live till the next May, if not injured by our winters. The life of the drone is about the same as that of the worker, under favorable conditions, but a very precarious life he lives; for, if a scarcity of honey prevails, and the hives are not fed by the apiarist, the drones are unmercifully driven from the hive or killed by the workers. Friend Salisbury tells us, on page 299, Aug. No., that the drone does not live one half the length of time the worker does, and cites, as proof, his experiments with a nucleus. Does not friend Salisbury know that drones have the privilege of entering, unmolested, any hive where their own drones are allowed to remain? and that, if they are driven from one hive, they are allowed to enter another that retains its drones? Such is our experience. A nucleus having a queen just fertilized has no more need of drones, and persecutes them till they leave; or, if they persist in staying, kills them. With an isolated hive, our position, that drones live about 45 days during the worker season, can be proven. That drones live over the winter we have proven by twice having our hives so plentifully filled with honey, as to have drones flying every fine day during the fall and winter, the excess of honey causing the bees to allow them to live as long as life held out. It was really amusing to hear their merry hum from many hives during February and March. As the pleasant days of April came on, they gradually grew less and less, till all were gone about the middle of that month. G. M. DOOLITTLE.

Borodino, N. Y., Aug. 6, '79.

PROM AN A B C SCHOLAR.

I HAVE just been reading GLEANINGS for Aug. and enjoyed the cartoon therein very much. I thought I recognized in it the visions and dreams of a young man about my size and looks, especially as to the large fine queens he was unable to find. I have one colony in which I have been unable to discover her majesty, although I have looked several different times for her. The stock is very strong, and besides I cannot keep the hive open very long now, on account of the robbers. I am going to send to you for some queens before long, and then she will be somewhat like the honey in the clover which friend Hasty talks about, "We have got to have it."

The mortality among bees in my vicinity the last winter and spring has been fully $\frac{1}{2}$ or $\frac{3}{4}$, especially among farmers and box-hive men; and even those who try to put away their bees in the most approved way, have not been exempt from severe losses. I packed my 12 swarms last fall in chaff, and they all came through till spring nicely, when three took to dwindling, and kept it up till I had to break them up entirely. Of my other nine, eight were good and one very weak. The weak one contained the queen

you sent me last fall; but, with care and attention, I soon built it up to a prosperous colony, and they have done well. I have now 20 strong swarms, all Italians and hybrids. I have taken but very little honey so far, as I did not aim for that so much as to increase my stock with safety; but, should we have a good fall supply, I've got the bees to take advantage of it. Bees did very well while the white clover lasted, which was fully two weeks shorter than last year. They are now making about a living on melilot.

ARE THEY PURE ITALIANS?

In the summer of 1876, I cut a swarm of bees from a tree. They wintered nicely, and the next spring were a strong, prosperous swarm. The progeny of the queen were from pure blacks to one and two banded Italians. In the summer of 1877, I raised one queen from her brood. This queen showed slight marks of Italian blood, and her workers were very good Italians. This stock swarmed in June, 1878, from which I saved six queen cells. These queens were better marked than their mother, and the bees from about half of these queens were still an improvement on the last old stock. This year, on June 17th, one of the best of these queens led out a very large swarm from this old stock. I have three young queens whose brood are now out. One of these queens is just as bright yellow as any queen I ever saw, and her progeny are all very bright, three banded bees, much brighter than from my tested queen. Of course, I do not know what kind of drones these several succeeding queens met, but, from their bees, should think they met Italian drones. The question I wish to ask is, are these last named bees pure Italians or not, starting as they did from the bees I got from the woods? I am sure they would deceive the most experienced eye, if they did not know their pedigree.

I have a curious phenomenon to report; at least, I have never heard of any thing of the kind before. I had a small, observing, glass hive, in which there was an unfertile queen. One afternoon, I chanced to see this queen fly out to meet the drones. In about twenty minutes, back she came with the evidences of impregnation attached to her. I saw her every day for the next week, with this white mass still clinging to her, but not so much as at first. After the third day, I saw her try repeatedly to lay (at least, she would go through the same movements other queens make while laying), but never laid an egg. Well, after a week, I thought I would play doctor and try a surgical operation. So I caught the queen and held her by the wings, with my left hand, while, with my thumb and fore finger of my right hand, I extracted this white substance. It was quite tenacious, and I had to give it quite a little pull. This did not seem to hurt the queen, for when I let her go she ran on the comb and among the bees the same as usual. She still did not lay any eggs, and in three or four days I found her outside the hive dead. Whether the bees killed her or not I do not know. I would like to know if you ever had a similar case, and what was the cause of it?

I would like to tell you about the real, live fun I had the other day, cutting a bee tree; but I know I've tried your patience already. J. W. KEERAN.

Bloomington, Ill., Aug. 6, 1879.

The bees you mention, friend K., of course, are not pure, for you state yourself that you know they contain black blood; but, for honey, they are, probably, just as

good as Italians. Should we attempt to rear queens from them, however, we should find the old black blood cropping out every now and then. It is on this account, principally, that I have advised using an imported queen, and no other, for Italianizing an apiary. I have seen queens carry the appendage you mention several days, but it always disappears by the time they commence to lay. I always like to hear about cutting bee trees, but I like better to be one of the crowd.

JUST WHAT I DID IN THE CHASE FOR THAT HONEY.

BEFORE I had finished writing the article about improving the red clover, I began to keep my promise to do some practical work in the matter. For years, I have always had some plant or plants in hand, trying to teach them the way in which they should grow, and work of that sort is especially fascinating to me. I would tell about some of these efforts, only 'twould make this article so abominably long. Well, I went for the clover fields, inspected, dissected, reflected, rejected, selected,—now for a few hours, then for a few hours, and then again by and by, until nine elected clovers stood all prim in a row in the garden. Did they live? Avault! Foolish question. They bloomed on, and grew, and ripened seed, as if nothing worse than Thanksgiving Day had transpired. Secret; a big hunk of solid earth, and plenty of water. Clover No. 10 was afterward discovered and accepted, but not transplanted, as it had plenty of ripe seed on it already.

All the ten have distinct qualities. No. 1 has a large, beautiful head, No. 10 a little bit of a head, No. 5 a head that keeps blooming for a week or two, beginning at the base and going slowly to the summit. A believer in wedlock is clover No. 2, as its blooms grow side by side in pairs; it has also a curious eccentricity which it would take too many words to describe. Nos. 6 and 7 are pale red and deep red clovers, chosen for being as *ordinary* as possible in all respects except the shortness of the tubes. No. 8, like Saul, stood head and shoulders above his fellows. No. 9 is the pet, the shortest tubed of all, and clothed in peculiar and delicately tinted apparel.

On "Freedom's Day" I had four kinds of seed ripe enough to plant, and all the others by July 10th. Starting little fine seeds in midsummer is "kittle work." Did I drill them an inch deep, and then leave them to the tender mercies of drouth and blazing sun? Not so. A nine foot row of little stakes the size of a pencil, and seven inches apart, deployed at right angles from each clover. The ground was thoroughly soaked. Each seed lay in just such a position by its stake. A five inch board mounted on bricks gave shade at noon, and let the sun under morning and night. In six days, the second generation of improved clover was making a cheerful show of itself. To-day, Aug. 6, some of the plants have put out as many as ten or eleven leaves. I hope to make some of them bloom this fall. Clover manifestly has the trick (so common among weeds, as their defense against extermination) of suspending germination, and coming up at some future time. Most of the ten sorts are coming up yet, and how much longer they will continue I don't know. No. 4 is an exception, nearly every identical seed

reporting itself inside of a week; while of No. 2 scarcely one seed out of fifty sprouts as yet. The rows, however, are most of them filling up, and some will soon have to be thinned out. Almost inclined to be lifted up am I, to have things go so well. And the clovers themselves, in their little bed, they are lifted up. That villainous mole, he does it. I have no more affection for that mole than I have for a bed-bug. A very careful analysis of each clover is booked for preservation, to compare with the new crop and furnish data to show how fast the work gets on. I shall not be discouraged, if the first progress is almost all in the wrong direction.

I have discovered that bees have two, quite different ways of working on red clover. They are working freely now on the second crop. Quietly taking a very close look at a bee, he can be seen to push his head deep into the tube, and remain there quite a long time. While so engaged he keeps violently scratching and digging his toe nails in, as if in the effort to get down deep. Late blooms are shorter tubed than early ones, and he is evidently licking the interior of the tube well down toward the bottom, if not actually touching the bottom drop of nectar. While I was selecting my clovers some bees were at work on early blooms. They proceeded in a manner entirely different, passing from one tube to another so rapidly that it was impossible to see what they did, any farther than to see that they did not make any attempt to get down into the heart of the flower. Possibly they only passed their brushes over the stamens for pollen; but I suspect that some of the upper folds of the corolla, in very favorable weather, secrete a little honey,—enough so that a very agile and industrious bee can make it pay to lap it up. I think some confusion and many false claims have resulted from not discerning these two, different ways of working. If Italian bees visit red clover while common bees do not, it is no proof that either the one or the other can reach down 42 hundredths of an inch.

I had some fears of failure in measuring precisely how deep bees can take honey, and tried first with a bunch of fine straws. The result was not entirely satisfactory, owing to the difficulty of making the remaining syrup keep its place in the straw, while it could be laid bare and measurement made. The general indication from several trials was that 24 hundredths of an inch was about the distance. Upon getting some clover tubes filled, I gave the first head to the same colony. Result did not vary much, although some tubes were taken out deeper than 24. The colony were blacks, with many hybrids mixed among them. A colony of blacks having no foreigners visible among them did much better, taking out several tubes 30 hundredths, and one 32. The Italians crushed the most of their tubes, only two being left in condition to measure. In these, they had lowered the syrup 26 hundredths. The feat of drawing 32 hundredths deep was also performed directly under my eye by a two-banded hybrid, as I held the clover in my hand. The tube was so nearly transparent that I could see the tongue operating part of the time.

The dried top of a June-grass is the proper straw to fill a clover tube with. Fill the straw by suction, and insert it in the tube, and mind what you're at, too, for the flower resists with all its little might having anything thrust down its throat, and you will tear it or crinkle it down, if not very careful. Insert to the bottom, and blow forcibly in the straw while slowly withdrawing it.

The results above given are better than I expected. The average tube length of early blooms is now 42. From this we need to improve off but 18, and our revised clover will be good enough.

Bodley, Ohio.

E. E. HASTY.



HEXAGONAL CALIFORNIA APIARY, BELONGING TO R. WILKIN, OF SAN BUENAVENTURA.

DESCRIPTION OF R. WILKIN'S APIARY.

EDITOR OF GLEANINGS:—Enclosed find photo of R. Wilkin's apiary, which is in octagonal form, with extracting house in the centre. This building is enclosed on all sides with *wire cloth*, and curtains on the south and west sides, to keep out the hot sun in the middle of the day. Inside are

the two extractors, capping box, strainers, &c. Every thing about the apiary is in the most convenient form possible, so as to avoid unnecessary steps. The honey runs in a pipe from the centre house to a receiving tank of 3000lb. capacity (with measuring faucet), in the basement of the shop, where it is canned and cased ready for market. The pipe is two inches in diameter, made of tin, and painted

black, and is sunk in the ground, in an open trench two inches wide and three inches deep, so as not to interfere in walking about, or in wheeling honey from the hives to the centre, &c.

The apiary contains 408 stands of bees, and scattered outside are 75 nuclei for raising queens. The hives are arranged in the hexagonal form, six ft. and six in. from centre to centre, with entrances to the south.

The right hand of the photo is south, the left hand north. The streets in the apiary run north and south. Every other space is reckoned a street, and is named after some prominent bee-keeper in this vicinity. The hives are numbered from right to left, like houses in a city, and, instead of placing the numbers on the hives, we have small stakes with W for Wilkin's, C for Carey, &c., and Nos. 1—6—12—18—24—30—36—42, &c., each placed opposite its respective hive, so that, by glancing at the nearest number, it is an easy matter to recognize the number of intermediate hives.

The first image seen in the photo is your humble servant, who has just hived a swarm of bees which you can see sitting on the top of the step-ladder at his right hand. The second is R. Wilkin sitting on his three-wheeled *perambulator*, with awning overhead to keep off the sun, tool-box, empty hive, &c., beside him, opening a hive. At his left hand, is his little daughter, Mary, with a two-wheeled cart, ready to draw away the combs to the centre for uncapping, extracting, &c. At the north of the centre, is his oldest daughter, Hattie, looking to see when they are coming with some honey for her to extract.

The ground in the apiary is smooth, hard, and dry, with a descent of about one foot to the road, from west to east. This is the second year's growth of the grape vines in the apiary. He only has a few, as he was fearful that they would be in the way; but he has now come to the conclusion he wants more of them.

The building in plain view is the shop, with empty hives piled in front ready for use. South-west of the shop is the wagon shed, and fumigating house. The fumigating house has a capacity of 1700 combs; rags are kept saturated with sulphur, at all times, ready for use. Sixty paces directly south of the apiary is the dwelling house. The grounds are set out to pear, apple, peach, apricot, orange, lemon, fig, and English walnut trees, all in fine condition. The fig produces 3 crops in the year. Trees the second year from the cuttings are now full of figs, the second crop of the season. The apiary is elevated about 1,275 ft. above the ocean, and is 27 miles from Ventura, the county seat, a sea-port town. Mr. Wilkin's home is in Ventura. The nearest post-office is Seienega, 6 miles; the nearest school, two miles. From Ventura the road comes up the Santa Clara valley, a rich agricultural country, then up the Sespe valley. The apiary is located at the extreme upper end of the Sespe valley, and on the west bank of the Sespe river, which is 160 paces from bank to bank, at high water mark. The county road runs along the east bank, going up to the oil regions. The mountains on all sides except the south are elevated about 2,650 ft. above sea level, some of the highest peaks being snow capped in winter; yet, at the apiary, geraniums, roses, &c. are in bloom all the year. Ripe strawberries can be gathered every month in the year. Tomatoes are a perennial, and melons are a weed; that is, you eat the melon and scatter the seed, and, as soon as the

rainy season sets in, plow the ground, thin out the young melons, and keep the weeds down, and you have melons to perfection. The trees seen in the photo are the sycamore, live oak, and California walnut. The bushes are willow, water mite, alder, and California sumach. The bushes in the apiary are the white or sweet elder. All produce more or less bee forage in their season.

Beyond the county road, and nearly midway in the valley, on the east side of the river, is a rocky patch covered with cactus, or prickly pear, the home of the California quail, rabbit and squirrel. Away up the mountains, near the top, at the left hand, is where one of the neighbors was killed by a grizzly bear, while herding his sheep. The top of those mountains affords excellent grazing for sheep, horses, cattle, and mules. Sheep produce two crops of wool in the year. The sides of the mountains are usually covered with the different kinds of sage, or a dense growth of brush of different kinds, called "chaparral" by the Spanish.

The brush produces bee forage also. About half way up the mountains, in front, are three swarms of bees, located in the limestone rocks, and taking care of themselves in their own fashion. West and south-west are nearly 300 acres of white sage, all in one body. We have measured stalks 14 ft. in height. It does not look much like the white sage pictured in GLEANINGS. Thousands of acres of mustard are in the valleys, and on the hillsides, or mesa, as it is called here. I measured a stalk yesterday 13 ft. high, with branches in proportion. It is a great pest to the farmer, but produces large quantities of honey. I will give more history of the surroundings in my next.

E. GALLUP.

Seienega, Cal., July 17, 1879.

Ladies' Department.

FEEDING COLONIES THROUGH ON SUGAR SYRUP, TO SAVE THEM FROM THE BRIMSTONE, ETC.

MY neighbors, close to me, are box hive bee keepers with black bees, and I have no reason to expect they will ever change, or desire to do so. Will it be of any use to Italianize? Will I be able to keep my own stocks pure? I don't care in the least to even hybridize their stocks, at any expense of mine. They laugh to themselves and others at my "patent" hives, and "patent" comb, but the laugh was on my side last spring, when my 6 colonies well protected with cushions came through all right, and theirs were many of them dead. Even those I drove from their stores (to save them from brimstone) late in Oct. and Nov. and fed on sugar syrup, and supplied with 3 frames from other hives, did *very well* indeed. It was risky taking them so late, too.

I think J. S., from Bethel, Conn., needn't "growl" so hard; for I heard him say the cold blast smoker was a success. I have used one and like it much. Then, too, he has said he thought the story and a half hive was just splendid. Mrs. T. M. SQUIRE.

Redding, Conn., Aug. 4th, '79.

If you can take colonies that were rescued from the brimstone pit through such a winter as the last, Mrs. S., you can certainly get the full benefit of the Italians, no matter how many black stocks there are around you. To be sure the laugh was on your side, and it will continue to be, so long as you bring your bees through the winter as you have done.

My husband sent for a copy of GLEANINGS last spring, and I at once became interested in bees. I bought a couple of Simplicity bee hives all fitted up nicely. We had four swarms in common box hives. The 5th of June, we hived a large swarm, and after two or three weeks put on the upper story. The 6th of August, we opened the hive and took out over sixty lbs. of beautiful white honey, much to our surprise, as the colony did not seem to be making much. I indeed felt very proud of it, as it was the first section honey sold in Batavia.

MRS. E. M. CROSSMAN.

Batavia, N. Y., Aug. 13, '79.

CALIFORNIA AS A BEE KEEPING STATE.

ARTICLE I.

CALIFORNIA is probably the best and the worst place in the world, for the average bee keeper.

There is no reliability about the season, and there are no two seasons alike. In a good season, fabulous amounts of honey are obtained, and the increase in numbers is also fabulous, especially to the eastern bee keeper. A good, prolific queen commences breeding up to her full capacity by the first of Feb., and continues up to the first of Nov. In favorable localities, they can gather pollen every month in the year, and consequently breed every month in the year; still, in all localities, there is a comparative rest or dormant season, during three months in the year. In a good season and locality, extracting commences in March (that is, providing the hives have been left full of honey as they should be), and continues up to Sept.

Everyone succeeds in a good season; all get excited on the question and everybody wants to go into the business. Parties without the least practical experience purchase an apiary on time; then purchase hives, cans, paint, &c., all on time, and agree to pay with their first honey. The honey does not come, and the lumber dealer, hive manufacturer, hardware merchant, and, in fact, the grocery man, dry goods dealer, &c., all see financial ruin staring them in the face. Now, providing the season proves to be a good one, the honey is rushed into the market, and sold at forced sale, large quantities of it being in an unripe condition, so it ferments, bursts the cans, and helps to ruin the market for a genuine article. As there is no winter to kill off worthless stocks, every thing that has bees in it is kept, and many an apiary that counts its 300 stocks does not contain 100 good stocks in working order.

Still I can see that bee keeping, even in California, can be carried on with profit and success. It needs some capital and considerable good judgement as well as practical experience. Good, strong stocks kept in a proper condition are self sustaining, even in a poor season; and, in a good season, with proper management, the profits are large. Right here let me say that, even in California, strong stocks are the sheet anchor of successful bee keeping. Understand that I am not writing for the benefit of old California bee keepers, but for eastern bee keepers who have an eye on Cal. as a bee keeping state.

Bees kept in the valley, where they have had access to large fields of mustard, have stored a surplus; but the quality is not first best. The mountain honey is probably not surpassed in the whole world for its excellent quality; but there is no surplus this season, not even enough to supply the bee keeper's own table. If we have any honey for use we have to send to San Francisco, and purchase at double the cost we sold for, which is not just as it should be. The drawbacks to bee keeping are bad seasons, fires burning over the bee-range, and foul brood; for foul brood has committed great ravages in some parts of southern Cal. I have not had the pleasure of seeing anything of the kind yet. I understand that in Los Angeles Co., it has been quite a scourge. It was introduced into this Co., by feeding honey from Los Angeles Co. Still, I think, by persistent effort it can be eradicated entirely, as it is only in one or two apiaries, at present, in this county.

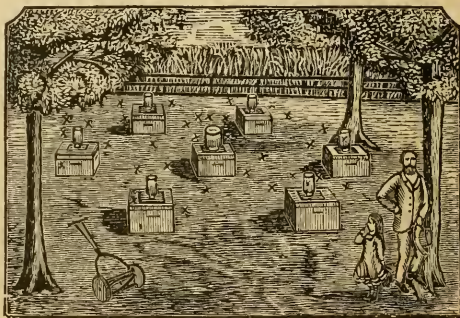
E. GALLUP.

Scenega, Cal., July 24, 1879.

OUR OWN APIARY AND HONEY FARM.

THE silver hull buckwheat was sown the 3d of July, and to-day, July 30th, just 27 days after sowing, it is in bloom enough to make quite a humming among the bees. They went over to the grape sugar apiary, as we call it, and spying, or smelling, the buckwheat a little beyond, they deserted the feeders, and went to reveling amid the blossoms. Our buckwheat was sown with a drill, and it looks so much better than any I have ever seen broadcast, that I really believe I shall never want any sown broadcast again. The plants, when up, were so even and regular, that it called forth exclamations of surprise from almost every one. The drill used was the Baker saw-feed grain drill, made at Mechanicsburg, Ohio.

I have said so much about the grape sugar apiary, I think I will have to give you a picture of it.



THE GRAPE SUGAR APIARY.

You observe that we have supported the boards and jars, on the tops of Simplicity hives, arranged hexagonally, precisely as we have them arranged in our apiary.

The "little chick" that cries "Bees, bees, bees, papa!" is so often out there watching them with me, that the engraver has taken us both. The only trouble with her picture is that instead of standing pensively at a distance as represented, she is usually right up among the bees, poking them this way and that with her finger, for they are as harmless as flies, when working in this way on the grape sugar. I told the artist my picture was not a good one, but he said it was impossible that it should be and be truthful.

ROBBER BEES.

Editor of Gleanings:—In 'Bee Keepers' Exchange' for June, in answer to the question, "When you extract, what do you do with the cappings?" I obtained an idea of more value than double the yearly subscription to the paper; to wit, how to prevent robbing. Having heretofore tried, with varied success, nearly every published expedient for the prevention of robbing, I think now I have found a perfect remedy. The great difficulty has been to get the victimized colony free from the robbers; for just so sure as one of them returns with plunder, to the attacking colony, does he come back to the spoliation with reinforcements.

Now, the very day I received the *Exchange*, I found a strong colony appropriating without opposition, the stores of a recently formed nucleus. The

old bees had returned to their old hive, and the young ones, which had just received a queen, were making no defense whatever. I raised the frames and saw several hundred bees tearing off cappings and struggling for the stores, paying no manner of attention to the rightful occupants of the hive, nor to the young queen, while the entrance was swarming with comers and goers. I at once took a decoy hive with similar entrance, and, having removed the nucleus a few feet, placed the decoy in its stead, and emptied therein a pan of partly drained cappings, and covered the hive. To enable the robbers to escape from the nucleus, I placed it on top of the decoy for ten or fifteen minutes, with the entrance turned in another direction. Every robber returned to the decoy, and, in a very short time, the nucleus was perfectly quiet, when I gave it a new stand.

The robbers worked at the cappings until after dark and again the next day, until they had reduced them to the consistency of chaff, when they gradually resumed legitimate business and made no further trouble. The nucleus, although standing but a few feet distant, was not further troubled, nor was the queen hurt. Another case; when a frame had broken down in a nucleus a few days afterward, it was served in the same manner with the same result. Give the robbers something to eat like cappings or broken comb, and let them work at it until they retire of their own accord, and no further robbing is incited.

Kansas City, Mo.

S. W. SALISBURY.

Truly, friend S., yours is a novel mode of treating robbing, but, from some similar experiments I have made, I have no doubt of its practicability. I would suggest that the plan might be a little dangerous during a very dry time, and that it should be practiced with great care, by beginners. Other stocks might turn in, and, if the hive were near others, they might be severely attacked when the cappings gave out. To be sure, it pays to take the journals.

After writing the above, I went out into the apiary, and took an extractor can nearly full of broken honey left after transferring. This was placed under the trees where the bees were working peaceably and quietly on the grape sugar, as illustrated on page 342. They smelled the honey at once, and in 15 minutes there was a pretty fair buzzing about the can. In 15 minutes more, the apiary was in an uproar; and in an hour from the start, we were obliged to close the entrances to strong hives, to prevent robbers from pushing their way into them in such masses that resistance was simply out of the question. It was a dangerous experiment, but I allowed them to go on for some time longer, until I was fully satisfied it would end in the destruction of a great many stocks, if it did not endanger the whole apiary. What was to be done? I tried putting a cloth cap over the can, but found it would certainly smother piles of bees. The can could not be carried away, for they followed in frantic thousands. The wire cloth house was just the thing. It was put over the honey, and, in a twinkling, we had great masses of bees clustered on the outside, wanting to get in, and about as many on the inside, wanting to get out. In an hour, we had tolerable tranquility, and

most of the hives that had been closed could be opened by giving them but a small entrance. By letting them out of the wire cloth house at intervals, they were allowed to take all the honey, but the bees were so daubed, blackened, and demoralized, that I turned with relief to my clean grape sugar feeders, and the bright healthy bees that sipped the sweet water from the grooved boards.

Aug. 2d.—From every direction almost, we have applications for drones. Drones are wanted by the lb. and oz., and drone brood is wanted. On looking over our own apiary, we find little or no drone brood, and the bees are driving out the live drones, as fast as their young queens begin to lay. Of course, we can keep the live drones by putting them in queenless hives, or removing the queens where they are. But how shall we manage to have more drones reared? There is not an old queen in our 250 hives, except the imported ones. We must have queens from different districts in Italy, to furnish drones, and our feeding must be kept up, so that they will keep on laying drone eggs. So we have prepared 20 frames of drone comb already, and we hope soon to have live drones, as well as sealed drone brood, to furnish those who may want them.

A cloud comes up to mar the beauty of the out door feeding arrangement. Towards evening, we were watching to see how many bees went in other directions, than toward our own apiary, and were dismayed to find a very large force of black bees going exactly in an opposite direction. These belong to an apiary of black bees about a mile and a half away. There is no getting around it. While my colonies are prospering so finely, those of all my neighbors are too, and even the black bees in the woods, I presume, are building up at my expense, and preparing to swarm. If they go a mile and a half, I do not know but that they go a mile more. Notwithstanding this, grape sugar is so cheap, and our out door feeding is so much less labor than feeding each colony in its hive, I rather think I shall keep on. It will be helping somebody.

Aug. 5th.—At about 7 this morning, the silver hull buckwheat was so alive with bees that it seemed as if the whole apiary must be there. It did not last long, however, for so many bees lick up all the honey very quickly. The Simpson honey plant has so far outstripped everything else as a honey producer.

INTRODUCING QUEENS AGAIN.

Aug. 7th.—We received, Aug. 5th, 20 imported queens. As 6 of these were dead, I shall have to conclude that Tremontani is losing the skill he has seemed to have in seasons previous to this. As 8 of these queens were to be sent with bees with them, it was very desirable to introduce them with as little delay as possible. The whole 8 were let loose at once, and were shipped the next day. If they were not accepted by the first hive, they were tried in another. Two of them were let loose in hives containing virgin queens, just hatched. The bees were quite willing to make the exchange. The

first was an accident, the virgin queen being found on the combs, after they had accepted the imported queen.

DARK COLORED ITALIAN QUEENS.

Aug. 8th.—Once in a while, we get very dark queens from even our best imported stock. Especially is this true of the larvæ sent out by mail. I do not know why it is, unless getting the larvæ chilled slightly makes the queens dark. The darkest queens in our apiary we have kept for our own use, to furnish brood, etc., and to see what the workers would be like. One was shown me this morning, which had been tested just because she was so very black. She is a nice, large queen, but she is of a shiny, jet black. In fact, there is no yellow on her; and she is much blacker than a native queen. Well, what do you suppose her workers are like? They are as prettily marked Italians, as any in the apiary, and are remarkably light in color. It is quite a curiosity to see her moving about among them. I shall keep her just for a curiosity, and when you come to see us, you can take a look at her and her workers yourself.

BOX HIVE BEE KEEPERS.

Aug. 16th.—A neighbor, who has recently moved into town, brought with him 4 hives of bees. The four hives gave him 10 swarms this season, and, after taking off considerable box honey, he has sold me 5 second swarms that he was intending to take up, for \$1.00 each, providing I would take out the honey and put it in tin pans for him. After the bargain was concluded, he came back to say that he wanted the boxes and barrels they were in back again, to put second swarms in *next year*. I told him if they were to be sold to me on the same or similar terms, I would lend him some Simplicity hives, and thus save the job of transferring. Well, I got a good many lbs. of fine Italians with some hybrids at a much less price than even 50c per lb., and he got a very fair profit on his four swarms of bees which had never cost him anything in money, and but little time, except to put the swarms, as they came out, into boxes and barrels. Truly, it don't seem very hard to make bees *pay*. The way they came to be such fair Italians without any care was from their being near our apiary, where there were such an abundance of Italian drones constantly flying.

Aug. 18th.—We have had two, cold, rainy days, on which the bees could not fly at all; consequently, the cups on the Simpson Honey Plant got full of honey. This morning, if you put several of them in your mouth at once, you could get quite a dose of honey, somewhat diluted with rain water. It was a rare sight, to see the bees drink, after the sun came out enough to permit them to fly. It has been said, that buckwheat does not secrete honey until we have cool nights, and this now seems to be the case; for, about 9 o'clock, the bees rushed for the field in one vast drove, and, for the first time this year, made quite a showing of buckwheat honey in their hives. The sunflowers seem to be mostly a failure, for there is scarcely a bee to be seen on them. I know this is not always the case, for, in former years, I have

seen them very busy on sunflowers. Mustard, also, is a failure under cultivation; but, although it will do nothing on our grounds, it grows and blooms beautifully on the hardest, barren roadsides about us.

Mignonnette has a fair show of bees on it, and borage also; but, although they work on these plants from daylight until dark, their work is tame indeed, compared with the loud humming on the bed of Simpson honey plants. For about an hour in the forenoon, they make somewhat the same humming on the buckwheat; but, after the honey is once licked off from the nectaries of the flowers, that is the last of it for the day, while this wonderful Simpson plant seems to pour a steady stream of honey into its nectaries. You can see a tiny drop shining at the base of the flower, in less than a half hour after the bee has licked it out clean, and this process is going on constantly, from daylight to dark, day after day, week after week, and month after month. I have planted seed enough in seed beds, to cover several acres, and I can hardly be patient until they come up. The seeds are so small, and it is so difficult to get them to germinate, that I have carried some to a market gardener, who says the ground must be shaded to get them to grow in this hot weather. One of our clerks, who is a good hand at making seeds grow, has tried some in a flower pot.

19th.—I am rejoicing over two things this morning,—the Simpson honey plant seeds have come up, and the buckwheat yielded honey enough in a part of the forenoon, so that the bees deserted the grape sugar. We only feed them in the afternoon; but, last night, they did not get it all before it became too cool for bees to fly. Is it true, that buckwheat only yields honey after we have cool nights? If this is so, it may be important to keep it in mind while sowing it.

HOW BEES "MAKE" HONEY.

4 o'clock, P. M.—The Simpson honey plants are at the back part of the honey farm, and, as it gives me a pretty fair walk, I usually go over there when tired of writing. Well, I have just been over, and the very great numbers of bees on so few plants aroused my curiosity; so, watch in hand (I *borrowed* the watch), I counted the number of bees that visited a certain flower, in a certain length of time. To my surprise, they averaged just about a bee a minute. The flower might not be visited for two minutes, and then again, it would be visited twice in a minute. Well, I very soon discovered that the bees that came twice in a minute made much shorter stays, than when an interval of two minutes elapsed. Was it possible that enough honey could collect in that tiny flower, to make it profitable for the bees to visit it all day long, from daylight until dark? If so, I ought to be able to see it by looking sharp. I found a flower, in the right position to receive the direct rays of the sun, and, just after a bee had licked it out clean, I watched the nectaries to see how soon any more honey was visible. To my great astonishment, in just $\frac{1}{4}$ of a minute, I saw a little shining globule of honey, begin to push its way up, right where the bee had licked it off.

(Concluded on page 364.)

HOW RAPE SUCCEEDS IN KANSAS.

ALSO A CAUTION ABOUT SHIPPING BEES.

ABOUT two years ago now, W. M. Kellogg sent me what might be called a good strong nucleus, which filled up and gave me 25lb. extracted honey, and wintered well. Last year, they doubled and gave me over 80lb. of extracted honey, although I had so much farming to attend to that I could not give proper care to them. This last spring, one stock came out queenless, and failed to raise a queen the first time I gave them brood, but now have a fine young queen at work. The other stock has increased to 3 good ones, besides giving me 50lb. of honey so far, and now they are at work very lively on buckwheat, rape, and heartsease.

Last fall, W. M. Kellogg wrote me that a lot of 50 stocks of bees could be bought cheap, near Oquawka, Ills. Kellogg took care of them there until this spring, and was to ship as soon as he could extract some of the honey, as they were very heavy; but there was no time when he could extract without exciting robbing, and he waited until June 17th, when he sent them as they were, heavy with brood and hives full of bees. I got them from the car, June 21st. Honey was all over the car, and 18 of the strongest stocks dead, and several more so near gone that they came out and went in with other swarms. A few were in splendid condition, and have done well. Some are now at work in sections, and I have increased by natural swarming and dividing to about 45 now, and, I think by the looks, I shall have 8 or 10 more within the next week.

I have 4 acres of buckwheat and 10 acres of rape. Four acres of the rape I cut about two weeks ago, and the last is nearly all out of bloom now. I shall sow some more soon. Rape grows well here, and I could raise two crops on the same ground, by sowing earlier in the spring. I tell you a few acres of rape look very nice and it makes very white and pleasant honey. The bugs let it alone here.

Hastings, Neb., July 29, '79.

J. W. CRAMER.

I am very glad to know that rape does succeed somewhere, for, with us, it is one constant failure, on account of the little black flea. It blossoms so quickly, we could easily get two crops here, were it not for this enemy. Had your bees been prepared for shipping with wire cloth on both top and bottom of the hives, there would have been no trouble. To do this, you need a Simplicity or other hive with a movable bottom board.

IMPORTANCE OF KEEPING HIVES FREE FROM UNPLEASANT ODORS AND ANTIPATHY OF BEES TO THE SMELL OF COAL OIL.

I DO not suppose you care about answering questions through GLEANINGS for those that don't subscribe for it. I exchange, however, A. B. J. with brother M. Martin, so you see each has the reading of both journals. I have had serious trouble with my new swarms leaving their hive, some of them going to the woods. I worked hard to stop all swarming, changing places with hives, cutting out queen cells, &c., &c. Frames of brood made no difference with them. I found no remedy until I scattered my empty hives and fixtures over the ground and let the sun strike all parts of them and the rain beat on them. They were new, L.

hives with movable bottom boards, all made of pine; but I had had them stored in a barn, near a lot of refined oil barrels, also lubricating oil barrels, and I think the odor caused all my trouble. Some swarms would leave after being hived 10 days; but most of them in 1 to 3 days after hiving. I got so tired and heated that I wished I would never have any more new swarms. It made no difference whether they were shaded or not. Italians, hybrid, and blacks seemed bent on leaving for the woods, when they came out of the new hives. I clipped some queens' wings and some I did not. It is no easy matter to find black queens, as I have tried four times by shaking them on a sheet and letting them run into the hive, and had to give it up. In the first part of the swarming season, they would cluster near by, I would hive them, and they would come out the next day; but, as the season advanced, when they left their new hive, the most of them would go to the woods in spite of dirt and water. It seemed that, if a single bee went into a colony that appeared satisfied, he would coax them to leave their hive. Since sunning my empty hives well, I have had but few swarms come off, and have had no trouble. Frames with brood in all stages seemed to do no good.

Now I would like to hear from some one that has had like trouble and find out if coal oil or kerosine oil is so obnoxious to bees as to cause them to leave their hives. Not only a few swarms, but about all of them, I have hived some seven times. If those few empty oil barrels gave me all this trouble, they have cost me at least \$100.00, besides so much hard work. I also hurt my eyes getting over heated so much by throwing dirt and water. I now have 93 colonies, very strong too. I like very much to read GLEANINGS, it is so plain. It is we beginners that need plain simple language. Men of experience are generally well enough posted, but they certainly can understand when a new beginner can.

McLane, Pa., July 14, '79.

A. A. HARRISON.

It makes no difference at all, friend H., whether you subscribe or exchange with your neighbor. In fact, I like the idea of exchanging; it seems neighborly, and then you both have the reading of both journals, at a small expense.

I am well aware that bees are quite sensitive to disagreeable odors, and that hives should not be kept where they are liable to be tainted in the way yours were; but I never before heard of such a wholesale time of swarming out as you have had. Coal oil has been suggested as a means of driving away robbers, by rubbing it about the crevices of the hives they are hanging about. It would seem, from your report, friend H., that there might be something in it.

BEE BOTANY AND ENTOMOLOGY.

"QUEEN OF THE PRAIRIE."

ENCLOSED I send you a honey plant, which I came across this morning, and do not know that I ever saw it before. I found it in a marshy or wet field, where nothing grows but what we used to call sour grass. There were bees without number working at it. I think I will try and get seed from it. It may be nothing new to you but to me it is.

JOEL HEYDT.

Ashley, Luzerne Co., Pa., July 7, 1879.

The specimen enclosed is *Sphæra rosea* (Queen of the Prairie), common in cultivation as an ornamental plant.

W. J. BEAL.

Lansing, Mich., July 16, 1879.

BUGS; ARE THEY ENEMIES TO BEES?

Professor Cook:—Enclosed you will find a bug, that I frequently see around my bee hives. Please tell me if he injures the bees. Last summer I found one holding on to a dead bee; whether he killed it or not I do not know. W. H.

Ironton, Mo., July 15, 1879.

This is a bug or *Hemipteran*, and so related to *Phymata eros* described and illustrated on page 293, 4th edition of my "Manual". This is *Largus succinctus*, and belongs to the vegetable eating bugs; such as, the squash bug and chick bug. It is 9-16 of an inch long. The color is black, bordered with orange yellow. The posterior border of the thorax, and the margin of the *Scutellum*—the little triangle back of the thorax—are similarly bordered. There are many species of these trim, gaily colored bugs, and they are often seen on flowers. They are not enemies in any sense, unless they devour useful plants.

A. J. COOK.

Agricultural College, Lansing, Mich., July 17, 1879.

LIPPIA NODIFLORA.

By next mail, I will send you a section of a plant that grows here, from which our bees get more than half of all their honey, and it is an excellent quality of honey. It generally commences to bloom in May and blooms till frost comes in Nov. or Dec. As you can see by the plant, the first blossoms that come last for months. As the stalk extends, the flowers increase in number, new ones coming all the time. It runs on the ground, and each thrifty plant will cover a yard or two square, by fall, with a perfect mat of flowers, as you can see by the specimen. It grows wild here. I have never seen it anywhere except in this, a small section of Cal. We have no name for it, and never have seen any one here that knew what to call it. The honey is fully equal to any white clover or sage honey.

O. E. COON.

The plant spoken of above is *Lippia nodiflora*. It belongs to the verbena family.

W. J. BEAL.

Agricultural College, Lansing, Michigan.

RICE CORN.

I also send you a few grains of what they call rice-corn here. It is a very profitable crop to raise for feed and good to eat when cooked. It is something like rice, and better than hominy, we think. It is also a good honey producer. Bees work on it very busily from morning till night, while it is in blossom, which is from 4 to 6 weeks. I don't know whether rice-corn is a proper name for it or not.

Lemoore, Cal., July 8, 1879.

O. E. COON.

We sent the seed to the *American Agriculturist*, and the editor replies as follows:

Several varieties of *Sorghum vulgare* or Durra corn are cultivated in California, differing in the size and shape of the panicle, and size and whiteness of the grain. So far as can be told from the grain alone, this appears to be what one of our seedsmen, W. H. Carson, 125 Chambers St., received from Cal. as "China Corn." So far as honey producing qualities go, I doubt if there is much difference between the varieties, though to use as food, the whitest is no doubt the best. Whether that offered by Mr. Carson as "China Corn" is known generally by that name, I cannot say; but you can procure from him, under that name, what appears to be identical with your sample.

GEORGE THURBER.

New York, July 16, 1879.

REMOVING A FRAME FROM THE CENTRE OF THE HIVE FOR WINTERING.

ALSO A MATCH BOX ATTACHED TO A SMOKER.

I WAS thinking while working with my bees to-day, that it would be a good plan to take out the centre frame in the fall, so as to give them more room there, and, if they would occupy it, it would make the cluster larger and they would not be so apt to chill.

Bees wintered very poorly here last winter. I had three colonies left out of 16. I now have 9, but won't get much honey. It was so cold and dry all the spring, until about the middle of June, that they only gathered about enough for brood. My hopes were about blasted, but I believe in "Try, Try,

again." I have transferred quite a number of box hives during the last two summers, and have two copies of GLEANINGS coming here, and one about 6 miles from here, in Wayne Co. Two years ago they did not know what a movable frame hive was.

I have also got two of your Simplicity smokers going around here, and one of them has got the small piece of sandpaper on it. I showed the owner the little tin match box I have on mine, and he thought that beat the sand paper. I have one of your extractors (bought it of Nellis), and extracted 140 lb. of honey from one hive last year and took three swarms from it besides. They had also over 20 lb. when they froze to death last winter.

I used about 20 lb. of fdn. last summer, and the people all like it, but I don't need any this summer, as I have lots of frames of nice combs.

Moscow, Pa., July 23, 1879.

S. J. HINDS.

The idea of removing one of the central combs is a very old one. It succeeds, I believe, but probably is no especial advantage, or it would have been retained by those who advocated it. In a hive whose combs are filled solid with honey, it might be a benefit; but where the honey is rather thinly scattered through the combs, it would do a positive harm. I have several times lost colonies by having a comb in the centre only partly built out when they went into winter quarters. In fact, my first queen, for which I paid Mr. Langstroth \$20., was lost the second winter in that way. You see this would not be quite as bad as leaving out a comb entirely. The trouble was that the bees consumed all the honey on one side, and were unable to pass over this space to the other side during a zero temperature.

I have studied considerably on a match box to be attached to the smoker, but have as yet been unable to get anything durable, and sufficiently out of the way to suit me.

HONEY DEW, MELLILOT CLOVER, ETC.

THIS has been the dryest year, up to the present time, that I ever witnessed in my life; but it has been very good for bees, up to the first of July. Since then they have not done so well. Through the month of June, there was the most honey dew I ever saw, and bees have made the most candied honey. Almost all the old bee raisers prophesy that the bees will all die off next winter on account of candied honey. They say they don't think the bees can eat it. I would like to hear from you in GLEANINGS concerning it, and also as to the cause of their making so much candied honey.

I have received a circular advertising seed of a bee plant that is called Mellilot clover. They say it stands drouth and frost, and grows on any soil, wet or dry, in any climate, north, south, east, or west. One acre will support 20 hives of bees and yield 500 to 1000 lbs. of surplus honey. I want to hear what you have to say about it.

JOHN G. W. SEWELL.

Iron Rock, Ga., July 19, 1879.

Your candied honey, whether it is obtained from honey dew or other sources, is virtually grape sugar, and is no better or worse than grape sugar for wintering. The principal, and, in fact, the only, difficulty with either is the propensity to candy; but this will do no harm in warm weather, or at a time when the bees can fly out to get water to mix with it. No matter how hard it may seem in the combs, it is all used up in warm weather.

I very much doubt whether an acre of mellilot ever produced 500 lbs. of honey. The statement you refer to was first made by one who introduced the seed and had it for sale, and it has been very extensively copied by those having it for sale. We have an acre of mellilot on our farm, and I am going to make some experiments on it, but it will be very hard to get at even approximate results, I am afraid.

FOUL BROOD.

I SHOULD advise any man who has become satisfied that there is foul brood among his bees to destroy every one, get what wax can be got, and start again. From my experience, I would not bother with a swarm 5 minutes. I have tried salicylic acid and borax and carbolic acid; have brimstoned and froze the combs; but all amounted to nothing with me. I have had all the experience that I ever wish to have with it. If any body wants to experiment, I could furnish them bees, as I know where there were three different lots of bees that were diseased one and two years ago. I cleaned mine out last spring, and commenced with some new bees.

The diseased ones mentioned are some 8 and 10 miles away owned by old fogies who do not believe in these new notions. One man wanted to sell me his bees. I was suspicious, and told him I thought his bees were diseased, and described the comb to him, if foul brood was present. The bees were in old fashioned Langstroth hives or a modification of them. In the first hive I opened, I found what I supposed was there,—foul brood. That was enough; they had been fighting, and had swarmed but little all summer. There ought to be a law to shut such fellows up. M. L. SPENCER.

Little Genesee, N. Y., Feb. 25, 1879.

That foul brood is a terrible thing in an apiary, I am well aware, friend S., and I think it well to impress it upon the minds of our A B C class, most emphatically; but, although I have never had any experience with the disease myself, I am sure, from what others say, it can be got rid of, and without killing the bees too. See remarks in the A B C.

EXTRA THICK COMBS FOR THE EXTRACTOR, ETC.

I MADE some experiments with thick combs, but, about that time I turned my attention exclusively to section honey, and, in fact, sold my thick combs without extracting, for a dollar apiece. I used all wood frames, $\frac{3}{4}$ in., two being bradded together with a sheet of fdn. between them. When filled, they were about $1\frac{1}{2}$ in. thick, and the honey was most beautiful, pronounced, by my customers, superior to sections. I found that brood would be put in the lower edge, although they hung 2 in. apart from center to center. "Hans" has tried gradually spreading common brood combs in upper story, to secure thick combs, and succeeds in getting them even 2 inches thick, and finds no fault with them except that they are apt to get broken with only $\frac{3}{4}$ in. of wood around them. Bees will, in my opinion, refill and evaporate honey in a deep cell, as easily as in any other.

I rejoice with you in the success of GLEANINGS. There is only one drawback; there is such a large

company of us now that we don't seem to get so well acquainted with each other, and I miss the letters from Doolittle, Dadant, and others I might name, who went off in a huff. Give us a cold blast attachment to the old Simplicity smoker, and a telephone with wire from bee yard to house or shop, that shall warn us of swarms issuing. R. L. JOINER.

Wyoming, Wis., Mar. 15, 1879.

I am inclined to think you are right, friend J., about the bees evaporating the honey as well from thick combs, as from very thin ones. Some of the most rapid storing I have ever known was in those very thick combs, and it seemed to me, the bees were especially active, just because they were proud of such pounds of honey.

I know there are a great many of us nowadays, but do you not think, friend J., there is more wisdom in so many heads, even if a great part of the heads are A B C scholars? Perhaps, I have not managed well at all times, but I have certainly tried to do what was wisest and best for us all.

OUR CARTOON FOR SEPTEMBER.



IMPENDING BANKRUPTCY.

IT has been said, that a pipe and tobacco is the poor man's solace and comfort. It makes him forget his cares and tends to make him satisfied with his lot in life, &c.

Our friend, Merrybanks, who has entrusted the sale of his honey on commission to one of the above mentioned individuals, concludes, after a survey of the premises, that he prefers a man for an agent, who does not forget his "cares," and who is not satisfied with his "lot in life;" especially, when said "lot" comprises the existing "circumstances" shown in the window above, and while his possessions seem so palpably taking "wings to themselves" and flying away.

Box Hide Department.

BLACK BEES VERSUS ITALIANS.

LAST spring, I moved from the great State of Ohio, to Holliday's Cove, W. Va., and here, among other relics of the dark ages, I found an apiary of nearly all pure black bees. This apiary is manned by Mr. Wm. Griffith, an honest old bachelor, who does not take much stock in "new fangled fixtures about bees". Mr. G. uses the old fashioned box hives, of course, to match his bees, and has a "bee shed" for them, where they are all jammed up within whispering distance of each other, altogether contrary to the rules of bee-etiquette nowadays.

On examination, I found his bees in splendid condition, notwithstanding there was a hole two inches square in the top of every hive right over the cluster, and left open into the "top boxes", all winter, with no protection to the hives, save the bee shed, which is merely a roof of boards. Now, if I had come in possession of that lot of bees last fall, I should most certainly have carefully closed that big hole in the top, to save all the animal heat possible, and would have "tinkered 'em muchly;" but, would that have done any good? or would they have come out better in the spring? It has been a long time since I kept black bees, and from reading the bee journals and my own prejudice against them, I had about brought myself to the conclusion that black bees could not make any more money than would answer to keep up their miserable existence; but it has been a source of great annoyance to me, this whole season, to see those old bob-tail black bees of Mr. Griffith's keeping away ahead of my pet Italians both in numbers and in surplus honey; and such honey, too, just as white as snow! Yes, sir: they trotted out the first swarms in the neighborhood, and, actually, the miserable looking old fogies finished up their top boxes several days before any Italians about here. Now, I should like to know what we are going to do about this. Vote 'em a nuisance, eh? I have bought a swarm of these blacks, and, next season, if all goes well, I shall give them eighty to one hundred sections, and "try their bottom" as we do our Italians.

I have a good many colonies in chaff hives that have eighty and eighty-eight sections full, notwithstanding we have had a poor season. Had Mr. G's blacks been given an abundance of room like our bees, I cannot say how near they would have come to making as much per colony as our Italians, but judge from their strength and the rapidity with which they filled their fifteen pound boxes, they would have done as well as the Italians. I hate the looks of black bees. I am prejudiced against them, and when I find a colony of them fully up to, or a "leetle" ahead of, our nice, bright Italians, with all our chaff packing, chaff pillows, &c., &c., I just feel a good deal like kicking that hive over, and telling the owner, if he wants to get any good of his bees, he would better have them Italianized, transferred into a good chaff hive, and then his bees would be in shape to do him some good. I want to say, while I am on this subject, that it is my opinion that to produce the best all-purpose-bee, you should have pure black queens fertilized by Italian drones, and then you will not need to grumble about bees not working in surplus boxes. I expect to get a good many knocks across the knuckles for this doctrine, since it is not in perfect harmony with the Italian queen business; but let them come. There will be more to the front when I get wound up.

Holliday's Cove, W. Va.

J. A. BUCHANAN.

It seems impossible to keep up this department all the time, but about once in so often, some body comes round to give it a lift. Friend B. has, at least, given us a strong illustration of the importance of plenty of upward ventilation, during a winter like the past one. He has also given us a report from an energetic strain of blacks; but I think we shall have to admit such cases are the exception, and not the rule. If I am wrong, why is not this department kept up, and why do its advocates all sub-

side and go back to the Italians, sooner or later. Suppose, friend B., you start an apiary of hybrids, or pure blacks, if you choose, and get rich selling honey.

HOME MADE COMB FOUNDATION.

ALSO FDN. MADE BY THE SINGLE OPERATION OF DIPPING.

MR. A. I. Root:—I send you to-day a sample of comb fdn., such as I have been using this summer, which I make myself. You remember that, sometime last winter, I sent to you for some fdn. with which to experiment. It broke up badly, but I got a piece of brood fdn. about five inches square, and from that I cast plaster plates, and from plaster, cast lead plates, the lead being made some harder by adding pewter, and from one lead one, cast another, so as to have a pair to fit each other. Both together are just as thick as a type is long. These I wedge up in my press, a "Quarto Novelty," and print out fdn. When I want larger sheets I make several impressions on the same sheet. The first sheet made, I put into a hive, and, after 48 hours, found it about $\frac{1}{2}$ an inch thick and full of eggs.

For drone fdn. to put into sections, I engraved a cigar box cover, and dip starters. Of course, one side of the fdn. is not perfect, but the bees seem to work it just as well. I made a couple of engraving tools cut of an old clock spring, like these:



The first cuts like this, and the last finishes. With a little practice and sharp points, a nice plate can be made. I send a little piece as sample. I have been thinking that to make these dipping plates of wood, a couple of cast iron plates might be made, and hinged so as to be heated. Then let thin wood be put between them while hot, and burnt so that it will do. If this can be done, and I think it can (if I was convenient to a foundry, I'd try it immediately), they might be made and sold for 5 or 10 cents, or, perhaps, to cover mailing, &c., 25cts., and large enough to make—say four starters, two on each side. I can cut one out of wood in about an hour. After reading the "Home Papers" for nearly two years, I think you will rejoice if something of this kind can be done.

GEO. C. GREEN.

Factoryville, Penn., July 21, 1879.

STARTERS MADE AND FASTENED IN THE SECTIONS AT ONE OPERATION.

I send you a sample of dipping plates for starters in sections. I have used them sufficiently to give them a thorough test. They are durable and very cheap, and make a very pretty starter. In using, keep them moist on a wet cloth, dip in melted wax, set them in the top of the section, bevel edge next to the frame, pour just a little melted wax along the angle of the frame and plates, remove the plate and leave the starter firmly attached to the section. They never pull off and are readily accepted. Put a little screw or tack in the back of the plate to handle by.

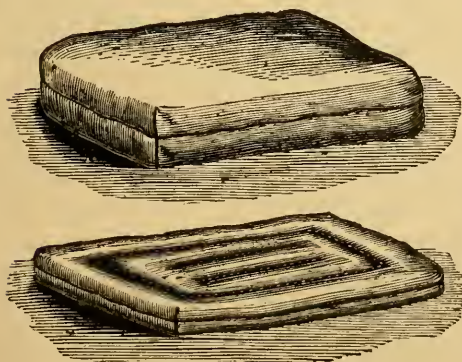
H. R. BOARDMAN.

East Townsend, O., July 18, 1879.

Wintering; Continued from May Number.

CHAFF CUSHIONS, AND HOW TO MAKE THEM.

We make use of two thicknesses of these; a thin one to be used in the shallow Simplicity cover, and a thick one to be used in the upper story, or in the story and a half cover, for wintering. The two are made much in the same way. You are to get a piece of strong muslin, we use Indian Head brand, fold it once, and sew up three sides. Before closing the last side, they are to be filled moderately full with chaff, making a sort of chaff pillow, as it were. Now, if made in the way I have indicated, there is an inconvenient feature with these chaff cushions; the corners will stick out unhandily, and the bulk of the chaff will constantly tend to work into the middle. We want the cushion to allow the chaff to come down into the corners, and around the edges of the hive, as much as possible, just as it would if you packed the upper story full of chaff. To allow of this, we want the cloth bag made precisely in the form of a shallow box, and we used to make them just like a box, having a top and bottom of cloth, and a band of the proper width, to unite the two. Well, after making them in that way for some time, a friend, whose name I have been unable to find, wrote us that by making them like a pillow as described above, and then pushing in the corners and sewing the sides together so as to make seams crossing the first seams at right angles, we could get the square box form, with much less work. The engravings below will, I think, show my meaning.



CHAFF CUSHIONS.

The dotted lines will show where the seams are. The smaller one, besides having the box form, is quilted as you see through the centre, to keep the chaff from slipping out of place. This one, for convenience, we usually tack into the Simplicity cover, so

that when the cover is removed, the cushion comes with it, facilitating both the removal, and replacement of these useful pieces of furniture in a bee hive. The cushions should at all times be perfectly protected from wet or dampness, for this very soon rots and destroys the cloth. It is a very nice point to have your cushion of just the right size, and containing just the right amount of chaff. Your best way will be to make one at a time, saving a paper pattern of each, until you get one that just "fits" and you can then, from your paper pattern, make as many as you wish and have them just right.

After trying a great many kinds, I have decided in favor of soft oat chaff. To get it free from dirt and the harder portions, I have had it run through a fanning mill, and collected that portion which was blown farthest from the mill. This is soft and warm to touch, and it is easy to imagine how bees, mice, or any thing else, snugly tucked up in it, might pass the winter dry, warm, and in comfort. To Mr. J. H. Townley, of Tompkins, Mich., I am indebted for the idea of using chaff for a protection in wintering. If he is not the original inventor, he is at least entitled to the credit of bringing it prominently before the public. It was during the month of Sept., 1875, when he so strenuously insisted that I should try one hive on his plan, that I could not well help complying. The following are the directions he gave me, taken from the Nov. No., of GLEANINGS for that year.

Make the box water tight, so that no water can get in from outside, and large enough to give you a space of three or more inches between hive and box, on all sides and top of hive. Arrange the entrance so that it *cannot* get clogged with dead bees (old bees will die, no danger of ice), take off top board or cover, put two sticks an inch apart across the centre of frames for winter passage, cover with cloth or mat (we use old worn out grain sacks cut in pieces of suitable size), pack the space snugly with dry wheat chaff or finely cut straw (sawdust is not good), and leave them there till fruit blossoms next year, or longer. On some cold freezing morning next April open this hive and notice the difference between it and those outside. See how warm it is, how nicely the bees are spread over the combs in all parts of the hive, while in hives outside, they are packed in a snug, compact, winter cluster, with more or less dead bees outside of the cluster, killed by the cold. We now have 60 stocks snugly packed in boxes, all ready for winter, where we shall leave them, with but little care and no anxiety for the next seven or eight months. We are so well pleased with our success in wintering and *springing* bees in these boxes for three seasons past, that we shall continue it until we do meet with disaster.

Friend Novice, please pack one hive away as above described, *now*, and give it a fair, impartial trial and oblige,—Yours truly, J. H. TOWNLEY.
Tompkins, Mich., Sept. 22, '75.

I prepared a hive exactly as he said. It was a fair colony, and they had an abundance of sealed stores, but it was no better than many others. I used an old grain bag, as he had directed, and it was so very old that the bees bit holes through it, and let the chaff sift down into the hive on them. With the exception of this trifling accident and the chaff packing, the bees of this colony had the same treatment as the rest of the apiary. I will give you some extracts from GLEANINGS, in regard to this colony and some others, and bearing directly on this matter of chaff packing.

The following extracts are taken from Gleanings in Bee Culture, for 1875-76:

Nov. 20th.—We are trying five hives in the open air; the Quinby hive which contains about the best colony in the apiary, and would winter well without chaff or anything else; the Standard hive, which has two colonies in it; the hive with the burnt candy; and two other fair stocks to test the advantage of a close hive compared with an open one. One of the latter is to be tucked up snugly with a quilt, and the other is to be put on eight combs in the centre of a two story L. hive, with nothing over or around the bees, except the cover to keep off rain. Both are carefully weighed and neither have been "tinkered" with by late feeding. Double walls and chaff and straw packing have been so much extolled, we wish to try the opposite—no protection at all.

Feb. 8th.—It is warm again now, but we have just had a zero spell, and our colony that we purposely left with neither sides nor cover to their defenseless heads, except the cover to the upper story to keep off the rain, for the first time this winter seemed to be the worse for such treatment; in fact, about one-half were cold in death, martyrs to the cause of science. "So bees do really freeze", thought I; but an examination showed that they did not freeze, they only starved after all; for on one side of the comb where there was no honey, every one was dead, but on the other where there was an abundance of stores, they were all alive. There was plenty of honey in all the combs except where the dead bees were found; in this there was none for several inches, and to get what there was they were obliged to get out in the cold or over the top of the comb, neither of which they could do during zero weather. Now it may be said that winter passages in the combs would have saved them; but even if they would, it will be cheaper to have plenty of bees, a good, gen-

erous sized warm quilt nicely tucked up over their heads, and a division board to reduce the size of the hive for wintering, to as small a space as consistent with an ample supply of food. All the rest of our colonies are in fair trim, and those in the house apiary as yet, scarcely seem to feel the winter at all.

Apr. 26th.—Perhaps the best colony we have, is the one in the Quinby hive that was packed on all sides and over head with chaff, *a la* Townley. They were so strong they would probably have wintered well any where, for we tried to get them to work in the boxes and failed; consequently they had every thing full of nice, sealed, clover honey. Now I never saw a hive having too much stores, notwithstanding all that has been said about it. I have tried the effect of too little, and know just what it does; now, I propose trying what the effect of too much will be. Our next best colony is the one in the hoop* hive, and they have been steadily increasing in numbers since Feb. Third best, colony with imported queen, in house apiary, on north side. Cannot see that it makes any difference whether stocks are on north or south side. I should be glad to add that the several dollar's worth of oil that has been used keeping the house apiary warmed for the past month has been of some sort of benefit to the brood, but really, the bees outside that have taken their chances are just about as well off. The colony left with nothing over them finally died outright.

It is now May 9th, and the bees in the house apiary are going so rapidly that I fear none will be left. Those outside are most of them building up, but a few of the weakest are yet going down with the well known spring dwindling. Now this Quinby hive that has the chaff over it is, as I have before said, considerably the best colony in the apiary; they are out first in the morning, and fly when it is cold and rainy, and so far as we can see, have not lost a bee; to tell

*This hoop hive was one of my hobbies in 1875. The idea was, to give bees the same amount of ventilation in a wood hive, that they would have in a straw one; the hive was therefore made of slats placed at an angle so they would shed rain, but the walls of the hive were less than $\frac{1}{4}$ inch in thickness. Strong colonies wintered in such hives, but they kept away from the thin open walls, not only in winter, but in summer also; for they would not seal comb honey, when placed next to those cool outer walls. A half inch board was next tried, but the bees showed more aversion to that than they did to an inch board. Next, I tried a half inch board with a cushion against it, and found the honey was sealed up better next to this, than next to the inch board. From these experiments, demonstrating that chaff cushions are needed in summer as well as winter, the chaff hive was worked out.

the truth, they are so covered up that I could not open and overhaul them if I would, and perhaps that is one secret of their prosperity. Day before yesterday, while I was walking near the hive, a bit of chaff flew out of the entrance as if impelled by a draft of wind. "Halloo!" said I, "have you really become so strong as to send out a current of air for ventilation?" and I approached and held the back of my hand before the entrance. Sure enough, there was a steady, strong blast, and what astonished me more, it was so warm that it seemed almost as if it must come from an oven.

I at once proceeded to my other hives, and not a breath of air could be perceived coming from the entrance of even the strongest. I went back to the Q. hive and pushed my hand down into the chaff, and long before it reached the bees, the warmth was very apparent; as I touched the cloth that covered the combs I made the remark that I must have touched the cluster; but as I slid my hand to the other end of the hive and then over and around the sides, I was obliged to admit that the cluster either filled 8 of the large Q. frames, or that the chaff had the astonishing property of so confining the heat that the whole hive was warmed up to a temperature that reminded one of handling a sitting hen. Perhaps it would be well to state here just how the hive was prepared last fall. The hive is wide enough inside to hold 16 frames side by side, and the side boards are tall enough to hold 16 more set on top of the lower ones. Well, the directions Mr Q. sent with the hive were, to remove all but 8 of the frames for winter, and to turn these 8 frames at right angles from their usual position, so that, when set in the middle of the hive, there would be a space of about 4 inches left on all sides for the chaff, etc., and over the top of the frames, a space of nearly a foot. Now if a Quinby hive prepared in this way will always winter like this one, why has the plan been abandoned? I once wrote in regard to the matter to Mr. Elwood, I think, and if I am correct, his reply was that the plan did not succeed so well generally as wintering in the cellar. At all events, in Mr. Q's neighborhood, the plan of out-door packing seems to have been pretty generally abandoned in favor of cellar wintering, notwithstanding the hive used (Q.) is most excellently adapted to being packed. Now I cannot help wondering *why* they failed. If it were possible to have 100 stocks in the condition of this one, by the 1st of May, bee-keeping would

be perfectly "splendid", as the little girls say; and such colonies would be cheap, even if it cost \$10.00 to put them in the necessary condition in the fall. If our friend Townley can and does winter a whole apiary in this way every time, why have others failed? It is true, our friend Butler *did* insist that I was stubborn in the matter, and perhaps I would better own up that I was and beg his pardon, for he certainly has been quite successful.

For the benefit of those who did not have Vol. III, I will say that, in obedience to friend Townley's *commands*, after turning the frames around as mentioned, I covered them with a common grain bag, cut up, expressly to have every thing just as he said, and then poured in and packed all around the bees about 5 bushels of oat chaff. Of course, I made a passage to the entrance, by laying a shingle over a couple of $\frac{1}{2}$ inch sticks. To get at the truth of this matter, I am going to waste some time and—chaff. In fact, I have already taken one of the weak colonies that was likely to die, stood the L. frames on end, slipped a grain bag over all, put on an upper story, and filled both with chaff. They haven't got "hot" yet, but perhaps it needs more than a $\frac{1}{2}$ pint of bees for such an experiment. The swarm I have been talking about is the one that came from the suspended hive, July 24th, last year, and as I tried again to get them to fill the Quinby boxes, and they would not, they had every frame full of stores. I let them have it all, thinking I would try for once the consequences of too much food, if such a thing is possible.

I am now going to have for my next hobby, hives crammed full of stores and no tinkering during cool, or cold weather; no dividing until natural swarming commences, and if honey is the object, perhaps no dividing or swarming at all, if it can be avoided. No extracting until the combs below are filled to their utmost, and no extracting under any circumstances that may render it necessary to feed the same back again. Of all the blunders in bee culture I think there are few greater than fussing to get the honey out of the combs where it is nicely sealed up, and then fussing, at still greater lengths, to get it back into the same combs and sealed up in the same way, *if we can*. "And give up feeding?" At present I *would* give up feeding, at least where one has as much to do as I have. Why, just think of it! the best colony in our apiary has not had one minute's time expended on it for the past

six months. At that rate, one person could take charge of 1000 hives until the time for surplus honey came, and should there be no surplus honey he might do it the year round, for all that would then be required would be to see that each one had a good queen, and the bees would do the rest. At the rate at which good colonies of bees sell, he could do a thriving business selling them, if he didn't get an ounce of honey, and should a great yield of honey come, he ought to be able to hire help at a price that would pay for taking care of it, if he were not burdened with too many "new inventions". Now all these bright visions could be realized without trouble, if every colony as well supplied as was the one from which we are taking this text would only thrive in the same way.

The Standard hive wintered beautifully, winter before last, because it contained two good colonies, but during the past winter, a fair colony went down to a pint, and the rest of our apiary went down in the same way more or less, during the month of April, or after they commenced to raise brood briskly. Is it possible that this spring dwindling has all been caused by allowing the juvenile bees to get sore throats, etc., on account of the brisk draft that our modern hives allow, when they are just the age to want to be tucked up? Keeping them warm with a tight board box has been no better; a tight board box would be small comfort to one of us on a frosty night, but plenty of warm, *porous* bed clothing would enable even an infant to keep comfortable. Corn fodder and straw put around hives and over them may keep the wind off, but they assuredly can not confine the animal heat in any such manner as the soft dry oat chaff that is only separated from the bees *on all sides* by a thin piece of cloth. Again, a packing of straw, or a straw mat over a strong colony of bees may be a very good thing, but can it amount to very much when there are cracks all around where the warm air can creep out, and when the sides are only cold, hard boards after all? How would you like to sleep in a bed made in that way? Would not the children begin to dwindle out in just about the way the bees do? Another thing; we don't cover our children with a board, or an oil cloth, or paper, or canvas, but we have wool and flannel; as the bees seem peculiarly sensitive to accumulations of dampness, I am inclined to think that even these would get damp and moldy. In fact, I have had some such experience, but the soft chaff, I think, is going to fully meet the require-

ments. Is it not possible that our fathers knew what was best when they decided on the old straw hive? Several weak colonies have starved because it was too cool for them to crawl up to a feeder containing syrup, while this Q. hive has bees all day and all night, walking around on the bare ground in front of the entrance which is kept warm by this blast of warm air that is constantly passing out of one of the entrances, while a stream of cold air goes in at the other.

Several years ago, we had a very weak nucleus in the fall, and as they were out of stores (they were in the American hive) we gave them one L. frame moderately filled with stores. To get this frame into the A. hive, we were obliged to stand it on end, and as this looked like rather a cold and "loose" arrangement, we packed some very fine, soft hay all around and over the top. As there was but the one hive, we did it well and carefully, and so closely was the hay or grass packed, not a bee found a chance to get out during the whole four months. Well, we supposed this frame of stores would last them only a month or so, and to determine when they would need more food we tapped on the hive occasionally (they were in the cellar), to see if they responded promptly. Well, they answered every time until the next April, and when they were put out they were all alive, and had nearly all of their frame of honey left. As this was our first experiment with in-door wintering, we were jubilant over it, and the next winter put all our colonies in the cellar—omitting the hay (of course, *that* could not be important, we then thought, and it may be a good place right here to apologize to those whom we have ridiculed for packing their bees and putting them in the cellar besides), and when they died with dysentery worse than ever before, it did not occur to us *then* that the hay had anything to do with the matter. If, after all these years, our unlucky nose has, at last, by accident, been turned in the right direction, we shall be very thankful.

May 18th.—As the bees were crowding out of the Q. hive to-day, I removed the chaff covering. The colony is a mammoth one for the season, and we found solid sheets of sealed brood in nearly every one of the 8, large Q. frames. The chaff protected them so well, that they seem to have been entirely free from the dwindling that has affected nearly every other colony; of course, the abundance of bees and stores in the fall,

as well as the chaff, had much to do with it. To get at the real virtues of this chaff idea, I am making some experiments now, which, I hope, will tell me before another winter, just how much to expect from it. If I can keep the whole interior of the hive warm, even in June, during cold storms and cool nights, by some such porous covering, I think it will be quite an item; perhaps it, like many other things, when well tested, may turn out to be an accidental success after all; but I wish to *know* just what it does.

Last year, we did not clip our queens' wings, but with the prospect now before us (several colonies are strong enough to swarm) we have concluded to have all clipped.

Now in regard to closed end frames; I found the queens, moved the division boards, and had the hives all closed up, where there were suspended frames, in an amount of time that seemed insignificant compared to that required to perform the same operations with a closed end Q. frame; and the statement made by a few, that such hives can be handled as rapidly as the suspended frames, seems to me positively *awful*. With a small colony, and a new hive, either closed top or closed end frames may be handled very well; but with an old hive so full of bees that they cover the end bars of the frames so as to prevent your seeing the wood at all, and frames so heavy as to make your back ache, while you stoop in the hot sun and look first at one end, and then at the other, to see if you are killing bees, and those hybrids, too,—well, if you think we don't know how, try one such hive yourself, or visit some one who *knows* how, if such there be. A careless person might not be aware that he killed bees at all, and some do not seem to care, but to me, the sight of the quivering form of a crushed and mangled little fellow when he is innocently standing in the threshold of his own door or peering out at the blue sky, while the closed ends are being brought up into place, is enough to spoil the pleasure of bee-keeping.

June 14th.—To open up the season's campaign, the Quinby hive sent out a rousing swarm to-day. Now, even after this swarm was hived and had sent to the field more workers than any two stocks in the apiary, the old hive kept on at work, with almost the same force as before, for they had been for a couple of days rather inclined to loaf on the front of the hive. Before swarming,

they stored 50 lbs., perhaps, in boxes, and there are bees enough left to keep the work going right along. What do you suppose an apiary of 100 stocks like this one would amount to? and this is the Quinby hive that we have tried 4 seasons, and heretofore, unsuccessfully. Although our esteemed friend who invented it is departed, his works bid fair to keep him in kind remembrance many days.

June 27th.—Hurrah for chaff! The Quinby hive has sent out a large second swarm.

Sept. 5th.—Our Quinby hive (packed with chaff) has given us four swarms, and all are now good strong colonies. If the chaff packing should work as well next winter, why may not the 5 increase to 25? This would be 25 from one, in two seasons. But this is not all; the first swarm stored full 50 lbs. in empty combs, and since these were removed has given us about 25 lbs. in sections. The second swarm has made about 25 lbs. of comb honey, and the third about 10; all four, as well as the old colony, have their hives crammed with stores, and the original stock has stored about 100 lbs. of honey in the Quinby boxes. Think of it! Five colonies amply provisioned for winter, and 185 lbs. comb honey, from one in the spring!

From the above, you can see what turned my mind so vehemently in favor of chaff. The same winter, in which I packed the Q. hive, as given above, I wintered the bees in the house apiary, with only a single thickness of cloth over the frames. The result was, they dwindled the worst of any bees I ever tried to winter, and I lost, if I am correct, every colony but one or two. The winter after, I protected them with heavy chaff cushions, and they all wintered nicely; not as well, quite, as the Q. hive, it is true, but they were not as perfectly protected on all sides. Since it is so much labor to handle the Q. frames (as I have before mentioned), the next winter, I tried a similar arrangement with the L. frames enveloped in a large case, with chaff, or cushions, on all sides. All colonies so packed came out all right. My neighbors made similar experiments, and they, too, as well as friend Townley, reported the same, with scarcely an exception. From these experiments, I worked out the chaff hive which I have here described, and, after a three years' test, taking all things into consideration, I consider it the simplest and safest means by which bees can be wintered. The second year, our bees were all packed in chaff, and the result

is given briefly in the following editorial, in the May No. of GLEANINGS, 1877 :

April 29, '77.—We have sold \$250.00 worth of bees out of the 100 colonies reported last month, and have 75 good colonies left. Is not that a little better than the reports we have been in the habit of making for the month of April? An income from bees, in the spring, is certainly quite a pleasant thing to have. Hurrah for the chaff cushions! and many thanks to friend Townley.

The winter of 1877-78 was very mild, and bees wintered well in chaff hives, and in hives of every other kind, so that our bee-keepers, myself among the number, doubtless got a little careless, and in undertaking to winter small colonies in the same way in the winter of 1878-79, disastrous losses followed. Strong colonies in chaff hives came out, as a general thing, as strong as they had in the preceding winters, but bees in common hives, and rather weak colonies in chaff hives, fared badly. The general testimony from bee-keepers all over our land is so strongly in favor of the chaff hives, that there can be no doubt about their coming into very general use for a winter hive. The Simplicity, from their lightness and convenience in handling, will always be in great demand for summer work. It is but a moment's work to lift the combs from one into the other.

WINTERING IN CELLARS OR SPECIAL REPOSITORIES.

A few years ago, cellars and special repositories became all at once very popular, and bee-keepers all over our land, especially in the northern localities, invested much labor and money in constructing good, frost proof cellars, or sawdust packed buildings above ground. In 1868, I put up such a building, and packed the walls with 8 inches of sawdust, and also put sawdust between the floors and over head, and wintered 48 colonies in it without losing a single one. A neighboring bee-keeper who used one similarly constructed had wintered in his for nearly a dozen years, and, at that time, had never lost a colony in it. These results seemed pretty nearly conclusive; but a few years later, when the spring dwindling, as it has been called, made its appearance, my neighbor and I both made the discovery, that bees taken out in March, in fair order, would often, in spite of us, become reduced, before the end of April, to a mere handful, and then perish outright, or leave their hives and swarm out as I have mentioned under the head of ABSCONDING SWARMS; while at the same time, good, strong colo-

nies left out-doors without any especial care, would often be full of bees and ready to swarm. I do not mean to say that such was generally the case, but there were always more or less in the neighborhood that would winter finely without care, while many so carefully housed would turn out disastrously. A neighbor who had devoted almost his whole time to his bees would be obliged, in spite of his well made bee house, to buy black bees in the spring to keep his Italians alive, and the strong colonies of black bees were invariably wintered almost without loss, in an open shed, in cheap, unpainted, box hives. Even the York state bee-keepers with their splendid cellars built especially for their bees, if I am correct, often used to go off into the country and buy black bees, in the same way, to get another start in the spring. It is so difficult to get many of them to report their *losses*, that I am unable to say whether they do any better of late years or not. I presume they do, for I should be very sorry to think we were making no progress in this one, great drawback to bee culture.

The bee houses answered very well the purpose of protecting the bees from the effects of frost during ordinary winters, but when we happened to have a very severe spell of several days' duration, the walls would collect ice and dampness, in the way I have explained in a former part of this article, and when the weather moderated, the melting of this ice made the room damp and unwholesome, in spite of the ventilating tubes or anything else that could well be arranged in such a building. If the weather came off very warm, as it frequently does even in midwinter, in our locality, the bees would very naturally want to get out, and then ensues a disturbance that is very likely to result in trouble, unless the weather speedily changes. The houses may answer well for one or two winters, or even more, but with the changeable weather we have here, I am forced to consider them more trouble than profit, taking them for a series of years together. To illustrate what we have to contend with, I will mention that in the month of Jan., 1878, we had such a spell of warm weather that dandelions were found in blossom, and the bees raised brood and grew strong almost all the winter through. Well, the winter after, during almost all the month of Jan., the thermometer stood from 10° to 20° below zero, and the spring being late and cold, the spring dwindling had a "run," almost unknown

before. One-half to perhaps three-fourths of all the bees in the northern states perished. Houses and cellars were a splendid investment for such a winter, while they might have been a perfect nuisance the winter before.

Now a good cellar has one very obvious advantage over any building made above ground, for the earth at the sides and under the floor will shut out frost in those directions, and a good building over head will afford protection above. It is not, in fact, very difficult to make a cellar without windows perfectly frost proof, and we want no windows in the apartment where the bees are kept, for the darker it can be made the better. Besides keeping the frost out, a good cellar is comparatively cool, even in the summer time, a condition that is hard to be secured in a room above ground. What then is the objection to a cellar? The principal one, in our clay soil here in Medina, is that it is almost of a necessity damp. A good, clean, dry, frost proof cellar, in a sandy soil, is perhaps as good a place for wintering bees, as can well be arranged. If it can be in a sandy side hill, so that the bottom of the cellar is on a level with the apiary, it seems as if almost nothing more could be asked. I should ask one thing more, however, and that is, that the hives be arranged permanently in this cellar, and the bees be allowed to go out at their pleasure, as they do in the house apiary. There are two difficulties in the way of doing this: first, it would be difficult to fix an entrance not too long, and that would not admit frost; second, the bees would lack the benefit of the warmth of the sun during the spring months. I do not see, at present, how we can get anything much better than the chaff hives, and the house apiary.

HOW TO GET RID OF DAMPNESS, AND SECURE PERFECT VENTILATION IN CELLARS.

It was long ago noticed by many, that bees wintered in cellars directly under the kitchen stove came out in fine condition, while others where there was no stove near the bees wintered badly. This seemed to show conclusively the benefit of artificial heat, for warming and drying the atmosphere. If you will recall what has been said in regard to cold and warm currents of air, you will see that to change the air thoroughly in any apartment, you must get up a circulation, by heating a portion of the air, or by other means. Putting a stove in a room or cellar answers nicely for drying

and thoroughly ventilating the apartment at one and the same time. As this would be likely to cause a disturbance among the bees, it is much better, to run a pipe, such as a stove pipe, into or through the room. A very common plan is to attach a pipe by an elbow to the pipe coming from the cooking stove. Carry this down into your bee cellar to within 6 inches of the floor. The draft from the stove will "pull" the air up, even the damp air from the floor, and fresh air will find its way in through the crevices, to take its place. If you wish to be sure that a current of air is constantly going up this pipe, throw a burning rag or paper on the floor, and the smoke will show you how the air rushes up the pipe.

I believe the large bee-keepers of York State, generally, have decided on in-door wintering, and Mr. L. C. Root, in his *Quincy's Bee-Keeping*, just out (May 1879), gives us some very valuable ideas on the matter. Recognizing the points I have just mentioned, they have, at considerable expense, prepared underground rooms, to be dried and heated by suitably arranged furnaces. They have entirely discarded buildings built above ground. Mr. Root particularly enjoins quietness, and to this end, advises that no one go into the bee room during the winter. Also that the hives be supported from the floor, or ground, and not placed on shelves or benches, as is so commonly done. This would avoid disturbing the bees in the other hives, when you are handling any one of them. The clamps or cellars are, if possible, built in a side hill, and the roof overhead is covered by at least a foot of dry earth, which is kept dry by a good shingle roof over this. The bees are to be put in these rooms during dry weather in the fall, and, if I am correct, they are not to be taken out until pollen and honey can be obtained in the spring.

I hardly need to say that a cellar or frost proof repository should have double doors, and if there be windows, they should be fixed in a manner that will be equivalent to making them double, being sure that no portion of the walls ever shows a bit of frost to melt, and thus produce dampness. A cellar within a cellar would be the thing, and if it can be so perfectly protected from dampness that the dust on the floor will remain dry all winter long, it is about as nearly perfect as it can well be, if perfectly dark, and well ventilated; that is, so far as getting the bees through the *winter* months is concerned. If I am correct, our greatest losses

have been in the spring months, after the bees have been removed from their winter quarters. I shall have more to say on this, a little further along.

PREPARING STOCKS FOR THEIR WINTER QUARTERS.

We used to think, where bees were housed from Nov. until April, that we need only carry in the body of the hive, omitting cover and bottom boards, and in short everything but just the combs necessary to carry the bees and their stores, with enough of the hive to move them handily. Now, although I have wintered bees finely, having nothing over the frames at all while in the cellar or bee house, I would, taking all results into consideration, pack them in chaff to be carried into the cellar, much the same as I would to winter them on their summer stands. Then, when carried out in the spring, they are proof against cold winds and cold nights, which almost always ensue. For the same reason, I would advise the chaff covering even in the southern states, that the bees might be spared the chilling spells that are so much of a hindrance to brood rearing, even though the weather is not down to a freezing point. Bees with warm walls all about them are in a much better condition to go on with brood rearing, than where the cluster touches cold, damp boards, and where cracks and crevices permit the warm air of the hive to pass out as fast as the bees can generate it. With a well made chaff hive and a good colony of bees, I can keep brood rearing going on by the use of the flour candy, right in the depth of winter, with the hive standing out-doors at that. In 1877, I hived a fourth swarm, late in the fall, in a chaff hive, and, as an experiment, built them up during the winter, until they were so strong in the spring that a customer chose them in preference to any other hive in the apiary, and paid me \$15.00 cash for them, which gave me an excellent profit on all the time, sugar, etc., that was invested in the experiment. I would bundle them up in chaff or chaff cushions, no matter where they are to be wintered. The experiments I first made in this direction with the house apiary also illustrate this subject.

TIME OF PUTTING THE BEES INTO THE CELLAR.

If they are packed and put away before the first frost comes, all the better; and please be sure to put them in-doors during some dry day, that the hives and combs may be entirely free from dampness. You will

have warm days after the first frost, I am well aware, and unless your cellar is as dark as the deepest midnight, and cool enough to prevent the bees from getting uneasy, you will have trouble about keeping them in their hives. This is one great reason why I object to cellar wintering. Some bee-keepers advise taking them out for a fly during the winter, when we have a warm spell; others object to moving them at all, and perhaps both are right. Sometimes, carrying them out does good, and, at other times, it seems to do harm. If you have them in chaff hives or a house apiary, they can go out whenever they please, and this plan pleases me much better. I do not like to be confined myself, and do not like to be obliged to confine any of God's creatures, when it can be avoided. I have sometimes had bees remain quiet and contented in the bee house, and in the cellar, four months, without trouble, and, at other seasons, they would not be quiet one month. At present, I do not know why bees winter well at one time, and at another, do not, when all the circumstances, so far as we can see, are the same.

SHALL BEES BE CONFINED TO THEIR HIVES WHEN PUT IN-DOORS.

If the bees are fastened in their hives with wire cloth, in such a way that the dead ones, in falling down, will not close and clog the entrance, I do not know that it makes any difference whether they are fastened in or not. In the one case, they will die against the wire cloth, and, in the other, they will get out on the floor and die. It is so untidy and disagreeable to have bees around on the floor, on the shelves, and all over the room, that I think I should fasten them in; I have done it two seasons, and did not consider the quantity found dead in the hives greater than we usually find on the floors. It has been recommended that an extra space be given below the frames, for the dead bees, that they may not clog up the entrance. With the Simplicity hives, this can be readily furnished by turning the bottom board hollowing side up, putting wire cloth over the openings at both the front and back end, and fastening the bottom board in place.

BEST TEMPERATURE FOR A CELLAR OR BEE HOUSE.

The general agreement has been on about 40°; but some of the York State bee-keepers claim they can succeed by keeping them as warm as 50°. My experiments seem to indicate that such a temperature, in confinement, would induce dysentery; but a systematic ventilation in connection with this temperature may answer better than the 40°.

Heads of Grain, From Different Fields.

REPORT FROM AN A B C SCHOLAR.

I AM now getting along nicely. I have made 5 new colonies, one a natural swarm. When I removed one of the black queens, I put her in the sample queen cage you sent me, and 2 or 3 bees along with her, and, in less than 5 minutes, they had stung her to death. I regretted this, as I wanted to practice introducing with her, and try to make another artificial swarm. Now, why did they sting her, when they were of her own brood?

I should be inclined to think you were mistaken about the bees being her own; but, if not, the presence of the robbers, which you mention further along, had probably so excited and worked them up, that they stung her by mistake. I have known bees so demoralized by robbers, that they would sting inmates of their own hive.

SHADE FROM GRAPE VINES THE FIRST SEASON.

How would I better shade my lives this summer, as the grape vines won't be large enough to cover the trellis this year? I can't use tomato plants, as they would injure the growth of the young vines.

If your vines are strong concord, they can be trained so as to shade the hives very well the first season. Train up a single shoot, and when it is as high as the top of the hive, or a little higher, pinch it off, and it will soon form a heavy clump of foliage. Bring this around on the west side of the stake or trellis, so as to shade the hive during the hottest part of the day, say about 2 o'clock, and it will do very well, even the first year. In our apiary, we have 500 trained in just that way. For the first season, stakes about 3 feet high will do very well.

HANDLING BEES OFTEN.

Another thing; you say to your A B C scholars, that they ought to look at their bees, by taking out the frames, &c., at least once a week, and that if they did so once a day you would have more confidence that they would succeed, &c. Well, Sir, I am so interested in mine that it is a real pleasure to look at them every chance I have, any how, every day or two; but they just dip into the honey for dear life, every time I lift a frame, and seem to consume a great amount of honey uselessly, and some of them are as cross as ever, though others I can handle without veil or smoker. Now, is it best to handle them so often? I mean to succeed, but I want to go at it right.

I think, friend F., if you handle your worst colony every day for a week or more, you will find that they soon stop "dipping into the honey" every time the hive is opened. I have tried some very cross colonies, and I never yet found one that would not become, in time, accustomed to frequent handling. It may depend some on what kind of a hive you have, but, with the Simplicity hives and metal corners, I say unhesitatingly handle them every day or oftener.

I find one drawback in the chaff hive, and that is, you have to take out all the upper frames whenever you divide or examine the brood chamber. Could we not leave out the top frames except when put on for surplus honey and cover with enameled cloth?

But, friend F., do you not have to remove the upper frames to get at the lower ones, in any two story hive? To be sure, you do not want the frames in the upper story, when they are gathering no honey. The chaff hive is used exactly like a single story hive, only

when surplus honey is being taken, and the colony is strong.

COAL CINDERS AND SAND AROUND THE ENTRANCES.

I found out that sawdust blows away too fast, and so I substituted coal cinders, and find them satisfactory, when some sand is used immediately in front and around the hive. The cinders keep the weeds down nicely, but they are a little rough until stamped down well.

I, too, am very much pleased with coal cinders, and white sand over them, for the ground around the entrances.

HOW MUCH HONEY DOES A BASSWOOD TREE YIELD.

By the way, about how much honey will a fair sized basswood tree yield, in one season? or rather, how many trees of good size are required to a colony, to keep them busy during the period of its bloom?

It is very difficult to say how much honey a basswood tree, or, in fact, any other plant, will yield. Seasons vary so greatly that it may be from nothing all the way up. Although we get some basswood honey almost every year, we do not have a real good yield one year in 5. To make a very rude guess, I think I have seen trees that would yield a quart of honey a day, for perhaps 10 days. Small trees in the clearing yield more on an average, than trees in the woods.

NEWLY MADE FDN.

I see that the bees work much more readily on freshly made, soft fdn. than on the hard, or that made sometime. I trust you may get many more scholars as interested in bee culture as you have me. Belleville, Ill., June 9, '79. E. T. FLANAGAN.

It has been several times suggested that bees accepted new fdn., with more willingness, than old; but, after trying that just made, by the side of some that has hung in frames not worked out, since last year, I am unable to see any difference.

FROM AN A B C SCHOLAR.

I received the third part of A B C, and read it through, finding it very interesting and instructive. When I received my Italians, I made a hive like the one they were in, and took three frames out of the old one and put them in the new hive. In 16 days they hatched out a queen. Well, for fear that the bees would follow her when she went out, I gave them another frame of brood. That was on the 15th of May, and now I have a large swarm of hybrids. The queen is very prolific, but the full blood queen is the most prolific of the two. Her bees are very nicely marked, showing the three bands very plainly. They are the best marked that I have ever seen. They leave the hive in droves while the blacks go out in two's and three's. FELIX CORTES.

Graniteville, S. C., July 24, 1879.

HOW TO USE BLACK BEES IN AN APIARY.

It seems as though you have too many black bees, after buying so many this spring, to insure to the purchaser of queens a fair prospect of getting pure dollar queens (Italians). I am going to order some soon of some one, but don't want hybrids.

Bellows Falls, Va., July 9, '79. A FRIEND.

I will tell you what we did with the black bees, friend C. They were put immediately on combs of Italian brood, and the queen, if any came, used to fill orders; for we have always had more orders for black queens than we could supply. At present, July 23d, there is scarcely a black bee to be found in our 250 colonies, and not a single queen we have tested has proved hybrid as yet.

HOW TO START AN APIARY WITHOUT ANY MONEY.

A month ago, I had 4 swarms of bees; now I have 31 swarms, and I got them without money. I made the one story L. hive, and went through the country, and transferred, one hive for a hive with bees in. I furnished the hive for them, and brought mine

home, and transferred and divided into two or three parts, giving each brood from my Italians, and have Italian queens with most of them. They are now putting up honey very fast from the wild grape. I had one Italian swarm, from which I took the old queen and about $\frac{1}{2}$ of the bees, that hatched 22 queens, 16 on one frame. Who can beat this? I uncapped several of the queens with my knife and took them out; I took out 17 in one afternoon. Do bees ever swarm early in the morning? I found a swarm one morning, about 6 o'clock, half of them being on a stalk of corn. Did they come out that morning, or the evening before? I am experimenting this summer in a rough way, and want to start next year in Simplicity hives, with experimental knowledge. J. Q. AYARS.

South Bosque, Tex., May 27, 1879.

Your bees probably swarmed early in the morning, although they might have hung out over night. Your luck in getting queen cells, and queens from every cell, was a little remarkable. If your climate is so warm that you can keep building your bees up, even during the winter, you will probably succeed without trouble.

INTRODUCING A QUEEN WITH $\frac{1}{2}$ LB. OF BEES.

I received queen and $\frac{1}{2}$ lb. of bees the 17th. There were 28 capped cells of honey left in the under side of the lower section, and 25 cells one half filled in the inner side of upper section, and only 15 dead bees in the cage. In place of introducing, as per directions, I took six combs, with the adhering bees, from different strong stocks, and put them in a hive (the Italians with them), and gave them a little smoke to pacify them, and they went right to work without any trouble, and are working splendidly now.

Accord, N. Y., July 21, '79. M. H. MENDELSON.

That was pretty close ratios for $\frac{1}{2}$ lb. of bees; it seems hard for us to learn that bees eat so much on a journey. Your plan of introducing them is generally safe, but, as letting them loose on a frame of brood at least partly unsealed, is absolutely safe, I have generally given such directions.

SEPARATORS AND CHEAP FDN. MACHINES.

I am a beginner in the bee business, having only been in it two seasons. I had 180 swarms last fall, and lost one through the winter. All the bees were missing at once. I don't know what became of them. They left honey in the hive. I had to unite 2 more to other stands, because I could not get them to raise queens.

Is it necessary to use tin separators between section boxes, where you use fdn.? Is it necessary to have fdn. the full size of box or frame, to make bees build straight combs or keep their combs inside the sections? that is, will they do it without the tin separators? I have some section boxes, and some of the bees are building crosswise, and fastening to the tin separators, which makes a regular mess of it. Will fdn. prevent that? Being a beginner, I have never used fdn. yet, but think I will next season. Are any of those cheap fdn. machines a success?

This year is poor for bees here. It is too dry; there was not enough rain last winter and spring. I suppose you are aware that there are 6 or 7 months in the summer, when we have no rain here, the days all being clear, and just as near alike as could be. It is a splendid climate for bees, when we get plenty of rain in the winter and spring. O. E. COON.

Lemoore, Cal., July 8, 1879.

I think every bee-keeper will have to decide for himself whether he wishes to use separators or not. If you wish your sections of honey to be exactly alike, so that any two will fit together without mashing the honey, you will have to use separators. Fdn. helps the matter, but it is not sufficient of itself. Neither are the separators sufficient of themselves; for, if you do not use starters, either of fdn., or natural comb, you will have many of the combs crosswise as you say. The cheap fdn. machines (\$22.00

and upward) are certainly a success, as is any work that I have ever known from the hand of Mr. Washburn. Many people, seeing the cheap machines and the higher priced ones side by side, would hardly be able to see any difference. The same may be said of the work produced by them; it may not be as thin, but, for the brood apartment, I do not think any difference will be found in practical use.

QUEEN REARING IN FLORIDA, ETC.

I now have 20 stocks, with pure queens. I had 10 queens out of 14, which mated and commenced to lay in Nov., and 2 out of 3, in Dec. I selected a lot of pure drone brood and put in a hive which I kept queenless, and it still is so. The drones have not been killed. The hive is still full of them, so I shall have early drones. They fly every pleasant afternoon. My bees were carrying both honey and pollen on Christmas day. Maple blooms Jan. 15 (about) and bees commence to swarm as soon as Feb. 20th. I can have tested queens in March. I have a place for my queen rearing where there are no bees of any kind, either wild or tame, within 3 miles. What can you do with queens in March, if I can send you some fine ones? R. N. MCINTYRE.

Daytona, Fla., Dec. 28, 1878.

If you could put queens in the market in March, or even in April, friend M., judging from past seasons, I should say it would be a good thing for yourself, as well as your purchaser.

REPORT FROM AN A B C SCHOLAR.

On the 20th of June, I received from S. Valentine, whose card I noticed in your paper, the prettiest Italian queen that it has been my privilege to look upon. I need not say that with much anxiety, I set my inexperienced hands to work, to remove the black queen. This done, I set the cage containing the Italian on the frames, close to the cluster of bees. After leaving her 12 long hours, I thought things seemed all right, whereupon I opened the cage, and let the black bees in. In a short time, they made a complete ball around her; I quickly disengaged her, and she went leisurely about the combs none daring to molest. On the 14th of July, I opened the hive to look for young bees. I did not see any, but there was brood in the combs. On the 16th (26 days after introducing the queen), I again opened the hive and with no small degree of satisfaction, I beheld a few most beautiful Italians, crawling over the combs. To-day (Aug. 1st), many of the Italians are at work. I imagine that they have inspired the blacks of the colony with greater energy; for I notice that the bees of this colony work earlier and later than those of the others.

CAN AN IMPREGNATED QUEEN DEPOSITE DRONE EGGS IN WORKER COMB?

How many, where, and what size openings do you use for ventilation, when you employ the chaff cushion in wintering bees? and does the cushion take the place of the honey board?

J. W. CARTER.

Pleasant Dale, W. Va., Aug 1, '79.

This is a hard question, but I will venture that she cannot, for if she could, why do the bees try so hard to build some drone comb, when we give them all worker fdn.? That a queen does occasionally lay drone eggs in worker comb I am well convinced; but I opine she does not mean to do it. The chaff cushions take the place of the old honey board, most assuredly; but I would always have some kind of a sheet or mat come next the bees to prevent their soiling and biting the chaff cushion. We have no openings through, or around, the chaff cushions, but we have the space above the cushions ventilated either by a loose cover, or by holes in the gable ends covered with wire cloth as in the cover to chaff hive, and story and a half hive. The size of the hole is not material.

TOO MUCH POLLEN AGAIN.

Bro. Root:—I do not see the point. See page 271. July No. of GLEANINGS. You say you think that you would make the bees rear brood, and use up that pollen instead of cutting it out. We know the strongest instinct of the honey bee is for storing. When they cannot store honey they will store pollen, and the more bees there are, the more storing will be done. Nearly all of our flowers here have pollen, and much of the time our atmosphere is not good for the secretion of nectar. When it is not in the flowers for the bees to gather, they gather pollen; and they are doing more of it in this neighborhood this summer than ever before. We are doing very poor business in the line of honey. E. LISTON.

Virgil City, Mo., July 25, 1879.

Notwithstanding, friend L., I would like to try your "too much pollen." If I could not make them use it up otherwise, I would divide the colonies and raise bees. Give me pollen enough, and I can always raise bees by the bushel, even if there is but little honey coming in, or but little in the hives. There was one colony in the house apiary that seemed to have an especial fancy for pollen. After basswood had failed, they kept bringing pollen from the corn, in such an incessant stream, that the entrance fairly sparkled with the bright yellow loads on heavily padded workers, and I could please visitors almost any hour of the day, by showing them the entrance to this hive. They had a young ambitious queen, of course, and to keep her going, they gathered pollen and almost nothing else, as it seemed. Well, to my astonishment they raised brood and built comb right along, while the rest seemed to be losing. It is true, they have combs packed almost solid with pollen, but I would like a whole apiary of just such stocks. If we do not get honey now, we shall get bees, ready for the clover and basswood next year.

BLACK BEES BEING ROBBED BY A NEIGHBOR'S ITALIANS.

During the last days of April, we had a few very fine days, and the bees were out doors enjoying themselves. My place, of some 11 acres, is surrounded with two rows of soft maple trees. I cut a large number of those trees at this time, the sap flowing very freely, and I very soon discovered that the stumps were well supplied with bees. I have a neighbor some 100 rods distant, who had 12 or 15 stands of bees. They very soon found the maple sap, and also my hives. The first we knew my neighbor's bees were generally going for ours. We did all that I had learned from the Journal to stop the robbing. About dusk, I uncovered our hives, which we had covered with wet cloths. The next morning, I was in season to watch the renewal, if the robbers came, but none came. About 9 o'clock, I thought I would examine my hives, as I saw but few stragglers around some of the hives. Turning up 5 hives on one stand, I found my bees to the last one piled up, dead on the board. Now, how about that? Please answer. You may say, it was probably my own bees that were the depredators; not so, for my neighbors bees are Italian and mine are black. Besides, I stood in a line between us, and observed a continual passing back and forth from the direction of my neighbor's. H. L. PAYSON.

Ashkum, Ills., July 21, 1879.

I do not think, friend P., the maple sap had anything to do with it, and, begging your pardon, I am afraid the whole trouble came from your not having given your bees proper attention. Do you know that those 5 colonies all had laying queens, before they were robbed? If not, that was your first fault. As you describe it, I should say that one or more of your colonies were queenless, and unless you know to the contrary, I

should say the bees had died out of one or more, leaving honey unprotected. The first fine weather, the bees of your neighbor found this, got started, and unless your other colonies were strong, with entrances properly closed, they would be quite apt to make a general raid on your apiary. It may be that one of your stocks swarmed out, leaving honey, as has so often happened of late, and this was what started them. Your letter rather gives the idea that while you have common bees in box hives, with at least 5 on one bench, your neighbor has Italians, nicely cared for, in movable frame hives. If I am mistaken, I beg pardon.

A QUEEN WHOSE EGGS WON'T HATCH.

I have a fine, large queen, since last fall, in my apiary, that lays plenty of eggs, but not one of the eggs will hatch. What's the matter with them? Can you tell? She did very well last fall, was in a chaff hive, and not exposed any more than the others right round her; but not an egg has hatched since she commenced to lay this spring.

Fairview, Pa., July 23, '79. THEOD. M. MOLTZ.

We have before had reports of queens whose eggs never hatched, but I do not know that I ever before heard of one that had been a good queen and afterwards failed in this way. All these facts seem to form a sort of connecting link in a chain; for instance, we have queens that won't lay at all; we have queens that lay eggs, but the eggs never hatch; we have one report of a queen that layed and the eggs hatched into larvæ, but never developed into full grown workers; we have queens that lay eggs but they produce only drones. Drone laying queens are comparatively common; queens that won't lay are also (usually from defective wings); but queens that lay eggs that never hatch are quite rare, only three having been reported to my knowledge.

MORE ABOUT THE SIMPSON HONEY PLANT.

I noticed in Aug. No. of GLEANINGS that you have purchased about two hundred plants of friend Simpson, and set them out in your honey garden, and that they came into blossom July 8th. Now, I would like to inquire whether those are the early or late variety. The early variety blossomed with me, May 23d, and remained in blossom four weeks. The late variety blossomed July 3d. I have some stalks seven feet high with 30 branches out from the main stalk. Some of the side branches have six or seven smaller branches. The main stalk is an inch through and it will remain in blossom until frost comes. I consider it the best honey plant we have; it comes right after white clover and remains in blossom the balance of the honey season. I have some stalks that do not show their buds yet. I will send you in this letter about 1-40th part of one stalk. I think, if the seed was saved and planted the same distance apart as we plant corn, one stalk would furnish seed for a thousand acres. Anyone wishing seed can make it known. I will save a quantity of seed of both varieties. W. P. IRISH.

Norton Centre, O., Aug. 2, 1879.

Ours is exactly like the specimen you send, friend I., but I have never seen any that blossom so soon as you mention. It certainly is ahead of anything I have ever seen. While the bees work but an hour or two in the morning on the buckwheat, they work all day long on this plant and, between sundown and dark, the number of bees congregating on it to get into the buds which open about dusk, is simply enormous. If comb honey were exposed to them, they would hardly come in greater numbers, or stay longer.

MORE ABOUT BLACK HATS AND GETTING STINGS.

In order to prove that bees have no aversion to black hats, and that persons are no more liable to be stung while wearing hats of this color than they would be if a light color were worn, Mr. Mitchell cites cases where bees, while swarming, were induced to cluster on a black hat. Now, this does not prove that bees are particularly fond of this color. While bees are in the act of swarming, they are in a different state of mind, and have altogether a different object in view, from what they have when persistently trying to defend their home and drive away intruders. The mind and object of the bee attempting to defend its stores will prompt it to dart angrily at and sting the very same object it would peacefully cluster upon, were it in the act of swarming. Possibly, bees would sting a person wearing a white fur hat, quite as readily as they would were the color black. The brim of a black hat throws a dark shade over the upper part of the face, and I have always noticed that bees strike with more certainty in that case, than they do if a straw hat of light color is worn which does not cast much shade on the face. On two occasions, I have seen broods of young chicks attacked by angry bees, and the dark colored chicks appeared to be selected and stung much worse than the white chicks. I have no doubt that hundreds of bee keepers have noticed this disposition of bees to attack black or brown more than they do light colors.

Holliday's Cove, W. Va.

J. A. BUCHANAN.

HOW TO FASTEN FDN. IN A FRAME, AND HOW TO MAKE A BRUSH FOR MELTED WAX.

Remove the comb guide from the frame; cut a board ($\frac{1}{2}$ the thickness of the frame) so that it will fit loosely in the frame, and put cleats on the under side of it to hold it just right; when in position, lay a sheet of fdn. on the board, then raise the lower side of the frame, board and all; see that the edge of the fdn. is in such position that a slight jar will pass it into the groove made to hold the comb guide; when adjusted, with a small brush, apply some melted wax; to make it doubly sure, have two such boards as described, and, after putting the wax on one side, lay in the other board and turn all over, then remove the first board and, in the same way, apply wax to the other side; by having a number of boards the frames may be stacked up until the wax is cold when there will be but little danger of the foundation's coming loose. I tried the rubbing plan, as recommended by you, and only spoiled fdn. To make a brush, take a small piece of ground-hog or other skin, with the fur or hair on, and wrap and fasten around the end of a pen holder, and you will have one as good, for the purpose, as any you can buy.

Pewee Valley, Ky., July 30, 1879.

A. W. KAYE.

I send, to-day, for your inspection, one of my unpatentable sections. Isn't it nice? and it only costs 75 cts. per thousand, in the flat, and a girl like—well say like Miss Maudie, can nail 6 or 8 hundred in a day. A friend of mine and myself got a spur made, and now we can take it to the basket factory, and in a few minutes we have all the sections we want.

Bees are doing finely here. I have had to work almost night and day to keep them supplied.

Benton Harbor, Mich., July 18, '79. W. L. KING.

Your section box is substantially the same that Prof. Cook describes in his "Manual," and if you can get the stuff ready to nail for 75c. per M., it is certainly very low. Miss Maudie and other girls of 14 can put up 6 or 8 hundred in a day, and they may do it for a day or two; but girls of that age, with our sections, gradually taper down to 100 in a day, and finally they don't work at all. I have tried a great many of them, and almost always decide on employing older people, even though I have to pay them a great deal more wages. After your sections are nailed up, you must cut the bottom bars narrower to let the bees in, and as this is a slow, hard job, you will find they are little, if any, cheaper than the other kind, and not nearly as substantial. I am very glad to hear that somebody has had a good honey season.

HOW MUCH FOOD DO BEES NEED ON A JOURNEY.

On the 11th inst., I sent $\frac{1}{2}$ lb. of bees, and a queen to Mr. Ed. Craig, Tiffin, Iowa. By mistake of express Co., Mr. Craig did not get his bees until the 23d. The queen and a few of the bees were alive. They were provided with $\frac{1}{2}$ lb. of fresh candy, and 3 oz. of water.

Kansas City, Mo., July 20, 1879.

E. M. HAYHURST.

On page 211, June No., I estimated that a lb. of bees on a journey would need a lb. of honey and $\frac{1}{2}$ lb. of water every 5 days. The report given above makes it appear that the amount of sugar and water mentioned would last them nearly 10 days, which I think is nearer right. We have demonstrated pretty well, that a given weight of sugar and water will last considerably longer than the same weight of honey. In very hot weather, perhaps it would be well to give more water; say a pint of water for every lb. of sugar. Do you not see we are making some progress in estimating what it costs to "board bees?"

I have a swarm of black bees, and they are building comb crosswise of the frames. Some of the eards are straight. What can I do to make them build it straight, without comb fdn.? Will it answer to take the combs out and cut out pieces where they run across, and leave the rest?

A. D. EASTMAN.

East Trumbull, O., July 4, 1879.

Since the advent of fdn., we have almost forgotten the subject of straight combs. To be sure you are to cut out the crooked ones, and make them build them straight. If you have all your combs built between two or three old ones, there will seldom be any trouble; but I hardly see how any one can afford to dispense with fdn. nowadays.

WHY DON'T THE BEES WORK, GETTING LOWER COMBS OUT OF CHAFF HIVE, ETC.

"O dear, what can the matter be?" I don't know what's up. For some time, our bees have been quiet, and appear to have nothing to do. The lower part of the hive is full of honey and brood, and bees are abundant. All are strong colonies, so far as we can judge, but they don't go above to work, or swarm. Our black bees are doing better than the Italians. Why? We have too much work to select brood frames from the chaff hive. Why not have the small boxes fitted into a crate like that in the one and one half story hive? It would be so handy, and the lower part of the hive could be looked through in a fourth of the time, which would be better for bees as well as operator. Can a chaff hive be made like the Simplicity, to set off the entire upper part when only the lower part is to be examined? will it be cold or add much to expense? Tell us how to keep fdn. not used this year and in frames from injury by moths.

JESSE MILLER.

Alliance, O., Aug. 1st, 1879.

I presume your bees have ceased work because the supply of honey is stopped. I think, by looking into the hives, you will find the Italians are doing the best, even though the black bees are making the most stir. Sometimes, blacks are busier on the buckwheat, which is just now coming into bloom, than are the Italians. You can use the $\frac{1}{2}$ story crate on the chaff hive if you choose, but I think you would find such cases more trouble to handle with a strong colony than are the broad frames. Hang your surplus combs in a tight room, or tight box, and, if put away during warm weather, you will have to look at them frequently to see that no worms are on them. See "Moth Miller" in the A B C. Also, page 212, June No., in regard to one story chaff hives.

TWO QUEENS IN ONE HIVE.

The queen is received all right, and, from appearance, she will do good service. If she does as well as the first one you sent me, which is the most prolific layer I ever saw, she will be worth double her cost. I was much surprised the other day, in looking through the colony which contained the \$3.00 queen you sent me, to find two queens in the hive. I was looking for the queen and found her, and on the very next frame to her another most beautiful queen was laying. She certainly is the finest queen I ever saw. I secured her, made a nucleus for her, and she is doing grandly. Is not this rather singular—two queens working in one hive and so close to each other? Bees in this section have increased largely this season, but there is very little honey coming in, owing to the dry season. So far as I can learn, bees are in a good, healthy condition.

Clinton, Mich., July 24, '79. J. J. WHITE.

Not so very rare, friend W., as you will see by the A B C. It is a little singular where both queens are young, but I have several times found two nice queens in a hive, and I always divide them, as you have done, rejoicing at my good fortune.

QUEEN CELLS BY MAIL; ALSO QUEENS BY MAIL.

I received GLEANINGS to-day, and, as usual, am much interested in it. I notice a communication from W. L. King, Benton Harbor, Mich., suggesting the idea of sending queen cells by mail. It may be that you will have learned, before this reaches you, that it will prove a failure. If you know precisely the hour it would hatch, you might probably send it successfully 24 hours before the time for it to hatch. I do not know that you can then, but I think probably it would be tough enough to stand it. I have had some sad experience within the past few days, in moving queen cells but a short distance. After I received my Italian queens from Paul Viallon, I had a fine lot of cells started, and cut one out for the accommodation of a neighbor, and inserted it in a queenless colony. I had 2 of the nicest queens hatched that I ever saw. When they commenced laying I went to look at my neighbor's. It had not hatched, and I knew it was dead. I opened it, and found it doubled up, the middle of it being where the head ought to be, and both ends up. I know it died the day I put it in the hive. I think, if they could be carried "right side up" all the way, that they would shake down by the motion of the car; but to shake them a little while in one position and then a little while in another, I am sure would kill them.

B. F. CATHEY.

Cabot, Ark., Aug. 4, 1879.

No doubt, you are right, friend C., and I presume that, really, a queen cell is as much prohibited by mail, as a live queen. When I wrote to the P. M. G., I asked if we could not mail a queen and workers, if the wings of the workers were clipped, but you have seen his reply in the Aug. No. A few days ago, we sent some sealed drone brood by mail; by the time it got through, they were hatched out, and our friend had a box of live drones by mail. I do not know what next to do about queens by mail, unless we go to the President. If necessary, we can put the queen and bees in a box made of wrought iron, that the mail clerks may be safe from all danger of being stung.

A HOME MADE QUEEN NURSERY.

I have used a nursery hive that costs nothing, and works very well for a limited number of queen cells. I took an old flat bottomed tin bucket, put some rags in the bottom of it, and over the top. Then I got some small bottles with wide mouths, cut some grooves in the corks (to give the queens air), took queen cells sealed up, and pinned them carefully to the underside of the corks,—one cell to each cork, so that when the cork was put in the bottle the cell would be in a natural position. These bottles with the cells were then placed in the bucket, a thermometer inserted, the whole thing hung on a nail over the kitchen mantel, and a lamp set under it,

turned down so as to keep the heat from 90° to 98° Fahr. When my queens came out, they were smeared with honey and put down at the entrance of a queenless hive and watched until they had crawled in. None of them were hurt. I claim for this old bucket nursery the following points: 1st, It costs nothing; 2d, The queens, being in separate bottles, cannot hurt each other, or unhatched cells; 3d, It is little trouble to examine it; 4th, The queens that come out too soon can be killed; for instance, from cells taken the same day from same hive, one came out in nine days after the queen had been removed, and the cells commenced, but none of the rest came out until five days later. The one that came out first was very small, the grub from which she was reared having been too old to produce a good queen. If I had simply divided my colonies, and allowed each queenless stock to rear their own, such a queen might have been the "early bird" in each hive.

Brownsville, Pa., Aug. 2, '79.

A. CAMERON.

FROM SHADOW TO SUNSHINE.

I wrote you that I had lost the queen which you sent me, but I think I have found her. I raised a queen for a hive 7 or 8 ft. distant from the one to which I introduced yours, and found her laying all right. Her progeny should have been hatching now, but, on extracting on the 15th, I found the hive without any brood or signs of queen cell, except some eggs 4 days old hatching. I then thought that probably might be the lost queen. She was very fine looking, medium light colored, and the bees acted as they generally do to a strange queen. My way of introducing is to cage the strange queen 2 days, then take the old queen away and leave the new one caged 24 hours longer, then drop some honey on top of frames, and let her go. I have introduced 3 since I lost yours. Would you advise raising young queens every year?

DANIEL WRIGHT.

Violet, Ont., Canada, July 17, 1879.

Our friend can certainly rejoice, for the queen he speaks of was a \$3.00 queen, and he had paid the charges and duty clear into Canada. Your plan, friend W., is by no means a safe one, although it usually succeeds. I would not rear young queens, so long as the old ones seem prolific, and they are very often better the second year than the first.

THE CENTURY PLANT AND FLOWERING YUCCA.

Since the statement made on page 100, March No., much has been said in regard to these plants. My brother writes from San Diego, farther in regard to them, as follows:

The man was right about the *century plant's* giving honey by inverting and shaking, but the *Spanish bayonet* only gives honey the same as another flower. There are plenty of century plants here, and in Mexico.

M. S. ROOR.

San Diego, Cal., Aug. 1, 1879.

Our yuccas purchased last spring have failed to bloom, but I was astonished a few days ago to find one in the yard of a neighbor. I was a little too late to find out about the honey, for the flowers were just fading, but the perfume of the large white blossoms was beautiful. The central stalk is perhaps 7 feet high.

TENEMENT HIVES.

I see in last number of GLEANINGS you figure a "shingle chaff tenement hive" made of cull shingles, which you speak rather admiringly of, intimating that you think of having 25 of them built. I think if you could see my 27 tenements built of common lumber and painted, mostly white, ranged in a square, like the blocks and streets of a town, you would not want any more built of mill shingles than you now have. Cull shingles may answer in northern Michigan where they are little worth, but you are in a more cultivated country and, like myself, take pride in having things in as good shape as your neighbors.

D. C. UNDERHILL.

Seneca, Ill., Aug. 8, 1879.

Notes and Queries.

WHAT AILS THE BEES? AND HOW TO CURE 'EM.

YOU are right about my swarm's starving, as I discovered that they had used all the honey that had been visible to me. I couldn't afford to send for your bee-candy, so I have been giving them sugar and syrup instead. I think they will come out all right, if there is any honey to gather now.

THOS. H. CURRIE.

Massillon, O., July 20, 1879.

[Our friend wrote that his bees were sick, and described their symptoms. I told him they must be starving. In the summer time, feed them any kind of sugar or syrup that they will eat, but do not give them, for winter use, anything poorer than white coffee sugar.]

We have 11 colonies. I have only tried bees this summer, and find it a nice business. I am attending college, and find it pays part of my expenses.

Mansfield, O., July 28, 1879.

M. B. BOALS.

THE NEW CONE ON THE COLD BLAST SMOKER.

Thanks for the new cone, with a larger tube for my smoker. I transferred my box hive day before yesterday, and the smoker smoked like blazes. One roll of cotton rags burned at least three hours.

J. G. FLETTERING.

St. Francisville, La., July 25, 1879.

My bees have done their best for the last two months. I had 85 colonies in the spring, some of them very weak. I now have 170, nearly all strong, as I put back many small swarms, and some I put together. I had none go away, but a very large swarm came to me. I have taken about 600 lbs. of surplus to date, and have a great many sections on hives partly filled. Most of them will not be filled till buckwheat comes. I expect a ton or two of dark honey as this is a great buckwheat country. There are, perhaps, 100 acres in easy reach of my bees. I am selling sections of clover and linn honey at 16c; delivered in the oil region, it nets me 15½ cts. I think dark honey will not be over 12 cts. delivered. This seems low, but really better than butter at 8 and 10 cts.

N. N. SHEPARD.

Cochran, Pa., July 28, '79.

QUEENS BY MAIL VERSUS EXPRESS.

Just received by mail in one of Root's candy cages, a live queen from S. W. Salisbury, Kansas City, Mo. It was 8 days en route, 2 vials of water exhausted, 7 bees dead, 6 alive. "How is that for high?"

S. W. SHERFEY.

Mesillo, New Mexico, July 28, 1879.

[The above report is of the more importance to us, inasmuch as friend Sherfey is the man to whom we have tried so many times to send queens by express, and failed. See page 250. Friend Salisbury also failed in sending them by express, but he succeeded by mail without any trouble. Several times this season, we have received queens by mail, and some of them in large packages. The only obstacle in the way (and it seems to be not much of an obstacle after all to many), is the rulings of the department. I think these rulings are unreasonable, and unneccessary, but even though nothing should hinder, I cannot feel it my duty to disobey such very positive orders.]

The imported queen you shipped me the 28th was received the 30th, in No. 1 cage, beautifully put up. The bees and queen were in splendid condition. The bees built a small piece of comb on their trip, and the queen laid eggs in the cells.

Pittsford, Mich., July 31, '79. GEO. H. DENMAN.

A GOOD REASON FOR NEEDING A SMOKER.

I thought it a good idea to have a smoker to-day when a hog got in the lot and upset the strongest hive of bees I had. I had quite a time with them but got them all right in a little while, so you will please find enclosed \$1.00 for smoker, Simplicity.

Logansport, Ind., July 29, '79. AB. HOWER.

[I think, friend H., I should have wanted something too, had I been you when I went for that hog, but it would have been something more warlike than a smoker.]

HOW TO DISTINGUISH YOUNG BEES FROM ROBBERS.

Do not young bees, when taking their alrins in the afternoon, rise from the bottom board with their faces towards the hive, crawl up on the side of the hive, and fall to the ground as you say robbers do? Bridgeport, Conn., July 29, '79. H. P. NICHOLS.

[Young bees do, sometimes, behave themselves very much like robbers, but you will readily see the difference, by noticing carefully the following points. Robbers go out in a sort of greedy haste, usually rubbing their mouths, and with their bodies poded out with honey. Young bees come out more leisurely, and have not that guilty, sneaking way. Their bodies are of the natural size, and their wings and plumage, when carefully examined, show them to be young bees. With practice, you can tell by the looks of a bee, what his probable age is, almost as certainly as you can tell a man's age by his looks.]

HOW DOES A QUEEN KNOW HER OWN HIVE?

The other day, late in the afternoon, when I was examining one of my hives, I happened to catch sight of the queen. I took out the frame on which she was, and in order to have a better view of her, I carried it over to my frame holder, about 30 feet off, where the sun still shone. While I was looking at her, she suddenly flew off, and lit on the ground about 10 feet distant. I put my hand over her to catch her by the wings, but she escaped and I lost sight of her. I remembered your instructions about leaving the hive open under similar circumstances, and so left the frame in the holder hoping she would fly back to it. After waiting a few minutes, and alarmed by her non-reappearance, I made the round of my hives and examined the entrance board of each, to see if, by any chance, she might try to enter any of them. When I reached her own hive, there she was on the entrance board, being interviewed by her family, who seemed, and no doubt were, greatly astonished at her presence there. Now what I want you to tell me is, how she got there?

She was purchased and introduced a month before, and had been laying very well; therefore I reason that, in all likelihood, she had never left the hive before. Now how did she pick out that hive among all the rest as hers, when she was at least 40 feet off when I last saw her.

J. H. JOHNSON.

New York, Aug. 7, 1879.

[Two explanations suggest themselves, friend J. One is that there was more of a commotion about that hive, than about the others, and that she was attracted there by the hum of the bees. The other is, that a queen, like a cat or pig, knows her home by a species of instinct. It is well known that the animals mentioned, after being carried in a close box or bag, a mile or more, in all sorts of round-about ways, and then released, will go straight home.]

SOWING BUCKWHEAT EARLY.

It has been very dry here this season, and, since linn bloom, bees have barely made a living. By accident, I sowed 2 acres of buckwheat nearly a month earlier than usual, which, however, proved a lucky accident, as it came into bloom just as linn and white clover went out. The result is, my bees have been laying up stores regularly each day, while some of my neighbors have had to feed. The Italians I find to be far ahead of the blacks.

Iowa Center, Ia., Aug. 5, '79. D. E. BRUBAKER.

BEES THAT WON'T WORK OR SWARM.

On the first day of April, I bought one hive of bees in an old box hive. They have lain out all summer, and covered the whole hive, and have not swarmed. Will you please write and let me know what I would best do?

M. G. O'NEIL.

Griffin's Corners, N. Y., Aug. 9, 1879.

[Transfer them and make them go to work, according to directions given in A B C. As it is now so late, it may be best to defer operations until another spring.]

SIMPSON HONEY PLANT AGAIN.

I have five Simpson honey plants in bloom, and to-day there was nearly one bumble bee to every blossom, working from early dawn till late at evening, and then they took up their lodging at the entrance of each blossom, so as to hold possession. They drove the native honey bees off, which I saw. How can I induce this "strain of character" in my bees?

Would the state of things be the same if I had one or two acres of this plant in cultivation?

WYATT MOREHOUSE.

Mombaccus, N. Y., Aug. 5, 1879.

[One very desirable quality of a honey plant, the Simpson plant seems to possess, and that is the honey is unusually convenient of access. The bee has nothing more to do than to put in his tongue and drink, and he can take it out of these gaudily colored little pitchers, every bit as easily as he could get it from the unsealed cells of his own honey comb. It is for this reason that bumble bees, bugs, flies, and everything else are so constantly about the plant. Our Italians seem to have this "strain of character" (being just at night, and first in the morning) already, friend M. I think one or two acres would be covered with bees all the same, if there were bees enough. I am now preparing to try the experiment.]

CHARITY.

And so the missing postal was addressed to Medina, Mich. Well, I have written—yes, thousands of postals and letters in my lifetime, and this is the first mistake of the kind that I ever made; that is, to my knowledge. I cannot account for this, unless it is because I was hurried and overworked at the time that the card was written. I will now try and have more charity for others who make mistakes.

W. Z. HURCHINSON.

Rogersville, Mich., Aug. 8, '79.

A BEGINNER.

On the 3d of May, '78, one swarm of bees came to me, and from that stock I have now seven good stocks, and have taken 103 lb. of honey, and expect some more honey yet this fall. J. A. McCUNE.

Cavettville, Pa., Aug. 9, 1879.

FEEDING TOO MUCH FOR SAFETY TO THE BROOD.

I am feeding my Italian stock for the purpose of filling out section boxes. Is there any danger of their filling the brood frames, so as to interfere with a proper increase of stock? E. M. PITMAN.

Centreville, Va., Aug. 9, 1879.

[It may do so, but there is not much danger. Some colonies will fill the brood combs more than others. I have fed a great many colonies, in order to get extracted honey put into sections, and such colonies always wintered the best of any in the apiary.]

On the 31st of July, a colony of hybrid bees, moderately strong, with nearly enough honey to winter them, and with brood in all stages, swarmed. There were no queen cells in the hive, and there had been no sudden yield of honey; and, if there had been, there was a frame of sections on each side of the brood chamber, with nothing in them but the starters. No honey of account had been gathered for nearly a month, and they had not been fed. The time of swarming was about 2 o'clock, P. M. They settled partly about 50 yds. from the hive, and then went back. The queen was dropped. I can not say whether she came out with the swarm or not. She is in the hive now and laying. The bees have been very quiet since they swarmed. CHAS. BOWLES.

Hillsboro, Ohio, Aug. 1, 1879.

[I think, friend B., they swarmed because of an extra queen, which you will find in the hive besides the old one, if you look carefully. Both are probably now agreed.]

WHAT ADVERTISEMENTS ARE SUITABLE FOR A BEE JOURNAL.

Now, friend Root, please allow me just one word of advice to you; that is, to keep out of GLEANINGS all advertisements that do not concern bee culture. I have heard it remarked several times, by one and another, that they would like a bee paper if they could get one that would treat of bees and nothing else. Now yours comes very near it, but I see several advertisements for things that are in no way connected with the bee business. Let us know how many different kinds of hives you are using, the names of them, how far apart you set them, and how much ground your 200 hives cover.

Concord, N. Y., Aug. 4, '79.

F. G. HAWKINS.

[I agree with you, friend H., in the main, and I will try to leave out those few. Fruits, poultry, and rural products are considered so nearly allied to bee

culture, that we often see them in a bee journal, and I hardly think our readers, as a general thing, will object. I use only two kinds of hives, chaff and Simplicity, and one sized frame, the Langstroth. The hives are set up perhaps 2 inches from the ground, on coal cinders covered with sand. They are 7 feet apart, and the 200 cover, perhaps, an acre of ground. I will try to give you a picture of the whole next month.]

AN IMPROVEMENT ON THE COLD BLAST SMOKER.

My last order came to hand all right, and I was pleased with all, especially the smoker; though I think I have made an improvement on the position of the draft hole. I cut a hole in the slide to the left of the large hole in the slide. Then the handle is always to your right hand, and you can always open or close the door or damper (draft hole), without changing hands. Wife says it is "lots handier." Cut the new hole in the slide about an inch to the left of the large hole in the slide, so that, as soon as the door is closed, the draft hole begins to open, and then you will not have to turn the handle as much, or rather so far, as with the old arrangement. Please let me hear what you think of "my invention." Of course you can use this "invention," as we want to keep pace with the patent right smoker men, &c. Beallsville, O., Aug. 4, '79.

N. J. ISRAEL.

[Thanks for the suggestion, friend I. When I made the first smoker, I thought I examined all the points of convenience in regard to the arrangement of these openings, but perhaps you are ahead of me. We can just as well arrange them in that way in the future, and our friends can easily cut an extra draft hole in the smokers they already have.]

SUGAR SYRUP VERSUS HONEY FOR WINTER STORES.

[The editor of the *British Bee Journal*, in August No., thus replies to a correspondent:]

"Never feed your bees upon honey; sugar syrup is cheaper by far, and it can always be relied upon as being free from the elements, or germs of disease, which cannot be said of honey, it being so liable to change."

[After the late experience I have had in feeding for winter, I think I can agree with him. If you must feed for winter, feed A coffee sugar, as directed in the A B C.]

NOVICE'S DOVETAILED SECTIONS IN LOUISIANA.

Dear *Gleanings*:—I began the season (Jan. 15th) with 15 colonies of black bees in box hives, transferred them successfully, built them up to strong stocks, Italianized them with queens from my imported queen, controlled their swarming propensities, and worked part for extracted, part for Novice's section honey. The result has been perfectly satisfactory; thanks to your excellent advice. I have, at present, 23 powerful, full-blooded colonies. All this has been accomplished in one season, with thousands of black drones to annoy me in my queen rearing. How is this for a beginner who attends strictly to business?

Honey in the Novice sections just "snatches every body bald-headed." Although my pets are "roaring" on the "palmetto bloom," I find it impossible to supply the demands of my customers. The sight of the beautiful sections of snow-white honey seems to set every one's mouth "watering" with longing. I seldom use separators. I shipped a crate to New Orleans "for fun," and was astonished to learn that it was pronounced by experts to have been the best, and finest, in the city. Hurrah for the Novice section! Every body praises my nice little honey box, but when I tell them whose box it is, they wish to know "what next;" when I cheerfully volunteer the information, that, if they are in any way interested, they should look out for next number of GLEANINGS.

Your enthusiastic pupil, CHAS. L. LARKIN.

Raceland, La., Aug. 1, 1879.

REPORT FROM TEXAS.

[It seems that Texas, as well as other places, does sometimes give large yields of honey. We extract from the *Galveston News* the following:]

FORT BEND.

Mr. Eckman has this year sold three tons of honey from seventy swarms of bees. It is likely that he will sell another ton before the season closes.

Continued from page 344.

I watched most intently—no mistake at all—this little globule was enlarging before my very eyes, and before two minutes were up, it had spread over, like a little silver mirror, and run along the side of the pitcher shaped petal of the flower. A bee now became anxious to push his way in, and I let him lick it out, and then saw the process enacted over and over again. To be sure that I was not mistaken, I called Mr. Gray, and he, too, saw the little "tableau" enacted over and over again.

One thing more. On page 262, I spoke of a way the bees seemed to have of reducing thin, watery honey to the proper consistency. Well, I secured a position where the bees would come between myself and the sun, and watched to see how many bees went toward the apiary loaded. To my surprise, I saw one and then another, while on the wing, humming from one flower to another, discharge this same watery liquid, and when my eye had become accustomed to it, I saw all the bees at work, expelling the water in this way, while on the wing. This, then, is the process by which they make clear, crystal honey, from the sweetened water, as it were, that is exuding so constantly, into the nectaries of these little flowers.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POST-PAID.

MEDINA, SEPT. 1, 1879.

And whatsoever ye do, do it heartily, as to the Lord, and not unto men.—Col. iii. 23.

TO-DAY, Aug. 25th, we fill every order for queens of every kind, imported and all.

THANKS are due the *American Bee Journal* office, for advance sheets of the bee and honey shows of Europe, where friend Newman, the editor, is having a most pleasant reception from the friends across the water. Full particulars are given in the Sept. A. B. J.

OUR British cousins have at least one wide awake bee keeper, in the person of John Hunter, author of a *Manual on Bee Keeping*. A new edition is just out, with excellent engravings of all the modern implements, and the whole work is fully up to the times. We can mail it, for \$1.25.

I HAVE never seen a queen received from Italy, whose bees did not show plainly the three bands. One that I sold has been returned to me, with the report that she is a hybrid; but her bees show the three bands quite distinctly, according to the points laid down in the A B C. Come and see them if you are not satisfied.

THE first fdn. mill Mr. Washburn ever made was to make thick side walls, with square tops, much like that made by the Dunham machines. The machine was carried to Chicago by C. O. Perrine, who,

for some reason, thought it was not right and altered it. It now transpires that this kind of fdn., although more expensive on account of its extra weight per square foot, does not sag like the thinner kind. We can manufacture mills to make that kind of fdn., at the same price, or we can alter any of the old ones, at a small expense.

It is a pleasant thing to be able to ship queens just the minute you receive an order, even if the orders come at the rate of 20 or 30 in a day. I believe we have done it every single day during the last month, for every thing except imported queens. In Tremontani's last invoice of 16, only 2 were alive. These two cost me, in cash, over \$12.00 each, and I sold them for \$6.00. Will thinks, if he was in Italy, he could send us queens so they would not die. I think so too; for a queen sent to Colorado, in a section box cage, that was by some mishap a month on the way, was received in fine order.

Later:—An invoice from another queen rearer in Italy has just come to hand with 23 alive out of 26, and all orders are filled, and a few ahead. Nine of the 22 were introduced at once by being let out into colonies having queen cells nearly ready to hatch. The whole process occupied less than 2 hours; one was lost.

WHEN you send money, my friends, please be careful to say what it is for. Several times this season, we have received letters similar to this:

"Find enclosed \$3.50 for 'Favorite Family Scale,'" etc. Now, we supposed, of course, the writer wanted a scale and sent it; but when he received it, he explained that the \$3.50 was to pay a bill that he *owed* us for a scale. Had he just said the "Family Scale," it would have saved express charges two ways, and lots of confusion. It seems strange that a person in paying a debt, should neglect to say even one little word about the money's being for that purpose; but, it is a fact, there are quite a number who do it. Our book-keeper can tell in a minute how it is, but, unless you put in that little "*the*" or something else equivalent to it, how do the clerks know that she is to be asked about it. With so many customers, it is impossible to remember a name, much longer than a minute.

THE SHINGLE-CHAFF-TENEMENT-HIVE.

WE are asked to give full measurements for making a shingle tenement chaff hive, so that any body can make one. It will be a pretty difficult matter to do this, and I hardly think it best to undertake it, until the hive has been further tested in actual work. Four colonies of bees are at work in ours, and I have no doubt that it will winter them finely, perhaps better than a single chaff hive; but I confess I do not find it as convenient to work with as I had expected. If you cannot make one from the directions friend Hutchinson gives, perhaps you would better have one for a sample to work by. The only important thing is, to make the frames so they will hang right, 10 below, and 14 above at right angles to the lower ones, and the same arrangement for each of the four compartments. Another friend suggests wintering 4 more colonies in the upper story, making 8 colonies in the compact form of a cube, and so close together that they may get the benefit of the animal heat from each other. This would be a splendid arrangement, were it not for the fact that we could not get at those in the lower story, without taking the one above entirely out. Of course upper entrances should be provided.

The contents of this leaf and the one following are not directly connected with the subject of bee-culture. On this account, I make no charge for them, and, if you choose, you can cut them out without reading.

Our Homes.

I am the Lord thy God, which brought thee out of the land of Egypt, out of the house of bondage.—Exodus, xx. 2.

IT was almost immediately after the events of the last chapter, that the wonderful answer to prayer occurred, which I told you about in the Jan. No. You can readily understand now, why I caught so eagerly at the lines I heard when passing out of church.

"Jesus, I my cross have taken,
All to leave and follow thee."

It was a new and bright thought to me, that some one else had really been going over the same ground, and had decided to leave all and follow this same Savior. The answers to prayer that followed seemed to say, as at the time of my conversion, almost in plain words, "I take pleasure, my child, in giving you all you ask for, or all you need, so long as you are faithful."

At this point I wish to digress a little. At the time of my conversion, and from that time forward, during the whole four years, there has been a constant feeling in my mind that it was my duty to speak out to the world, and tell them of my deliverance; to give them a chapter from the life of one who had served Satan, and afterward served God. Several things contributed to make me feel that I was called upon to take upon myself such a task; the principal one of which was, that I had stood before the people as a sceptic of excellent morals, and I had also been associated in business for many years with one of the opposite sex, demonstrating, as it were, that such a thing was not without a precedent, and that it was, at least in one instance, productive of no harm. I felt this the more, as, in those years past, I had taken great pains to make the matter look fair and right, through the very pages of this journal. On this account particularly, I had all along felt it a duty, to speak out, and stand honestly before the world. To speak a little plainer, I had for years, through this journal, mentioned having in my employ, or as partner in the apiary, one of the other sex, and, from the way in which I had written, in regard to bee culture as an employment for women, and their capabilities for the work, I had, as I have said before, established a precedent, and carried the idea that a woman or a girl as an assistant for the apiarist was of more value than a man or a boy. Still farther, in those back numbers of GLEANINGS, I have, or perhaps had, pictured woman in a sort of a false Quixotic light, as it were, encouraging in both their sex, and our own, a feeling too much akin to the one that would make her a doll or a plaything, to be waited on and pampered, rather than a human being endowed with reason, and having an immortal soul that she is to be held accountable for. I know there is another

er extreme, that would make woman a drudge and a slave, but you all very well know, I think, that I would not, for a moment, counsel such a course. I am certainly more anxious now that avenues for the employment of women should be opened than I ever was before my conversion, but, if anything I can say or do would hinder partnerships of the kind I have mentioned, I shall most certainly feel it my duty to speak out.

Farther, I most vehemently protest against women or girls being employed by men, or by any body else, where they will be thrown into companionship with one of the other sex, aloof from every body else. I allude to such cases as the employment of a girl by a photograph artist in an upper room, where the two will be alone much of the time; of similar cases in milk factories; of lady clerks in stores where the business is so small that but one clerk is needed; a girl to help in the apiary, etc., etc. I thank God that public opinion usually points out about what is proper in such cases, and I would warn you not to disregard public opinion. It is the voice of God, uttering a sound of warning. If the girl cannot be near a brother, a father, or a sister, do not let her go, no matter how desirable the arrangement may be in other respects. Now I beg of you not to urge the respectability of the parties, or their pureness of heart; for, if nothing farther comes of it, it will at least be an example for somebody else.

In my own case, public opinion did remonstrate, but public opinion, after looking on year after year and seeing nothing in particular out of the way, I believe, generally concluded it was all right. One of our city papers did mention the singular partnership, but in a way that might encourage others to go and do likewise, if they chose.

One thing that troubled me was, that in letters received from different parts of our country, especially from those who had followed me for years in bee culture, there were hints dropped indicating that some were beginning to copy my ways in other respects besides bee culture. Should I keep still in this matter because the world was prone to keep still?

It was in the month of Feb., of the present year, when I felt the time had come. I had considered the matter faithfully and prayerfully, for four years, and my duty seemed plain and clear, all this time. Before writing a word, I had a talk with my former partner, and the proof reader, who was an intimate friend of hers. As I expected, they felt that it would be a most eccentric, and uncalled for course, and sought to dissuade me. My former partner, who was, of course, more to be considered than any body else, or in fact, than almost all else, finally said, she did not fear to have the world know the exact truth in regard to the part she had in the transaction. I reminded both of the women of God's promise, that all things shall work together for good to those that love him, and that, even if my course were a mistake, which I was sure it was not, He would take care of the consequences to those who put their trust in him.

The matter, before being put in type, was submitted to the two women, and with the exception of one or two points, nothing was put in type, without their assent. I do not mean to say the papers had their approval, but that in view of *my* convictions that I ought to write thus, they reviewed the papers before they went into the compositors hands.

Of course, I was aware that a part of my readers would object most emphatically, to a course which to them seemed uncalled for, and so much out of the common order of things; but I knew or thought I knew, that there was among my readers a much larger class, whose lives would be made happier and better, from having known of my struggles with evil, and my final triumph over it, by the help of a power beyond anything in the shape of human strength. Of course, I kept the whole matter to myself with the exception of my wife, and the two mentioned. The compositors and pressman had been desired to take care that no loose sheets were left about, and when the sheets containing the two pages of the chapter in the March number were off the press, the whole matter, so far as I knew, was unknown to any except those mentioned. At this time, a very prominent divine who has charge of the churches of a large denomination in our state and adjoining states, came to preach in our town, during a temporary absence of our minister. He stayed with me over Sunday, and we became quite well acquainted. It was quite a treat to me, to talk with one who had so large an experience and acquaintance with the religious people of our nation, and one who had an education so comprehensive and complete, as had he in all theological matters, and he, too, seemed much taken up with a history of my conversion, and the work that had followed. He attended our Sabbath morning Bible class, and gave us much help, and, at its conclusion, asked to see a copy of the bee journal. He soon found these Home Papers, and, while I was absent at Abbeyville in the afternoon, he asked my wife for the back numbers; by the time I had returned, he knew pretty well what my work had been. Well, during that Sabbath afternoon, my wife told him of my paper that was just coming out, and asked his advice in the matter. That evening, after meeting, he asked to see me alone, and questioned me about my course and motives for it. I answered him freely. He assured me with such earnestness that I was misled by Satan, and on the brink of a yawning precipice, that I was in truth frightened. The matter, as he presented it, assumed quite a different phase, and I at once promised to destroy the sheets already printed, even though the labor on them should cost me several hundred dollars, and I told him that I thought God had sent him, on purpose to rescue me from one of Satan's wily snares. I told my wife, and we two knelt and thanked God for having sent us this good friend just in time. I slept soundly, and awoke with an untroubled conscience, ready to follow God's bidding where ever it might lead.

My wife soon came to me, however, saying

that she had just been told, by one who resided with us, that a report was abroad in our town, that I was going to make a confession in my next journal, and that every body was anxious to see it. I went in to see the Doctor, when he was up, and he seemed more troubled than I was. He said that the very fact of my having yielded to him so easily made him feel that it was *possible* that I was right and he wrong. People who are influenced by Satan, said he, are always headstrong and determined on any course they have undertaken; but, to his surprise, I gave way to him at once, even though it incurred the loss, to me, of considerable money, and my willingness to be guided by him, without even a moments hesitation, was what made him feel uneasy. After I told him of the report that had got abroad, he seemed more troubled, and remarked that it looked as if God had brought this about, to oblige me to go on; for, if a report was abroad and the sheet should be suppressed, the general verdict would be that the matter was connected with crime, while, in fact, there was none. After breakfast he went down to the factory, and read what was printed. He did not approve of it at all; not a single portion of it. Said he,

"Mr. Root, if that article does not *kill* your bee journal, it certainly *ought* to kill it."

He finally settled the matter by getting a promise from me, that I would hold back the printing of any further portions of it, until my own pastor returned, which would be in about a week. Of course, my pastor knew nothing of it, for I had not even mentioned it to him. Before he went away, he came back to say that he was very loth to take the responsibility of deciding on a course for any one to take, who feels that he is led by God to a certain course of action.

I am coming now to the whole point of this chapter, and the question to be considered is this:

Does God, in answer to prayer, guide us safely, in all matters in life? In going to him, on bended knees, with Bible in hand, are we absolutely sure of never making any great mistakes, and doing more harm than good? Nay, farther; are we sure he will not let us get off into delusion, monomania, religious insanity, etc. Is religion, pure and undefiled, a perfect safeguard against madness, suicide, and the like?

The Doctor had a powerful intellect, and was learned both in men and books far beyond any thing I could ever hope to be. In my talk with him, I had told him that I felt that God had guided me to this work, in all these four years, and I cited to him the answers to prayer narrated in the "Home Papers" he had just been reading. At one point in the conversation, he made a remark like this, although in the morning, he virtually recalled it.

"Mr. Root, perhaps there has been no answer to prayer at all, and all the events you have mentioned are only wonderful coincidences."

"And all my religious life a delusion?"

"Yes; all your religious life a delusion. God does not work miracles as he once did; have you a right to suppose the laws of na-

ture are to be suspended for your especial work?"

I presume I have not given his words in the above, but it was the thought conveyed to me. After he was gone, I dwelt on it. Had I not really been carrying things too far? Had I not been trusting to God and religion, where I had no business to do so, and in things I could manage myself? These thoughts were not new to me; they had often come up before, when I found something in the Bible I did not comprehend, or when the Bible stood in the way of some pet project of mine. If he is right, there must be some safe neutral ground. I must not ask God for the money that I need to day, for nothing short of a miracle could bring it, in letters that were written days ago. My Savior, who had been all these years a warm personal friend, growing warmer and nearer every day, began to grow farther off. A cold chill began to come over me. I did not know where to go to work or where to turn. Not a move could I make in business, or my work among the boys, unless I could first ask my Savior's approving voice. I tried to think I had no business to ask God to help me in every little thing. The Bible seemed suddenly an old book of no use, and the meetings I had taken so much pains to attend day and night in these years seemed a waste of time. I groped vainly for this more sensible ground for all of one day, if I recollect aright. I thought of my conversion and my new home; was it a delusion? I thought of the boys who had come out of jail and gone to teaching Sabbath schools, and of the revivals that had followed at least one of those schools; was that a delusion? I thought of the prosperity of my business, and the number it employed; of the new engine down below, so bright and shining and moving with such resistless power. How often have I looked at it, and wondered if it could be so, that such a piece of machinery was all my own! Where did I, the awkward, uncouth boy that every body laughed at, ever get money enough to pay for such a thing of life and beauty? Well do I remember how I prayed and worked to scrape together the money to pay for it, and how God seemed to smile on me at just the last moment, when I feared the money would not come in time. Why, you might as well bid a bee go gather honey with his wings cut off, as to tell me that God does not answer these daily prayers for our needs. I do not know about miracles, nor do I very much care, so long as that great kind Friend is near me, ready to reward me almost instantly, when I put away temptations, and strive to keep my heart pure in his sight.

I read the paper over again, that the Doctor thought would kill my journal, and then I knelt in prayer, and asked God to show me if I had been making a mistake, and had not been led by him. He was back again near to me, and I felt safe. I opened the Bible, and almost the first words I saw were these.

Then said he unto me, Fear not, Daniel: for from the first day that thou didst set thine heart to understand, and to chasten thyself before thy God, thy

words were heard, and I am come for thy words.

Daniel, x. 12.

I had, until then, doubted somewhat what might be the verdict of my pastor, but, from that time forward, I felt that God was with me, and that I was safe. For further evidence, I prayed that God would, through the mails, then being opened, indicate to me that my conceptions of the hearts of the people to whom I was writing through the "Home Papers" were correct. Pretty soon, the following was handed me.

I have seen, in other journals, several slurs cast on the "Home Papers"; but, Mr. Root, don't give up. I am no professor of religion, but I feel I have been drawn closer to God by the reading of your "Home Papers" than by all the other reading and sermons I ever saw or heard.

A. WILDER.

Sandwich, Ill., Jan. 20, 1879.

I prayed again, that I might have still plainer evidence; and this came.

Almost thou persuadest me to be a Christian.—Acts, xxvi. 28.

As it has been some time since you heard from me, I feel that I owe you my thanks, any how, for the good and kind lessons in the "Home Papers" of GLEANINGS. I always thought well of God's people, and when I read of the honest zeal you have shown, it made me almost say, and I have said it, that I am determined to be a Christian, and I am rejoicing in it to day, and thank God that he ever put it in your heart to publish the Home Papers. It is the first thing I read after getting GLEANINGS, and there are others who are strangers to our God, that like to read that part. I hope it may prove of benefit to them. O, if I could only have the faith that you have, how happy I would be! Please remember me when you go before God and think that I am pleading for you, that he may keep you unspotted from the world.

JAMES PARSHALL.

Union Valley, Mo., Feb. 3, 1879.

Once more I asked that I might have evidence that my very words and manner of writing was guided and directed so as to reach hearts and save souls; and, almost at once, came the following.

Dear Brother Root:—I must write something for your encouragement; and, to begin with, I will say that I am almost 66 years old, and I do not recollect ever taking any serious thought about the salvation of my soul, until after I read "Our Homes" in No. 2, of 1877. That article about walking 10 miles through the snow, for nothing but the good of other people, set me to thinking, and I have watched "Our Homes" very carefully ever since. When I read No. 1, '79, I determined to seek the Lord and his salvation.

The M. E. quarterly meeting commenced on Jan. 11th. I was away from home, and did not get back for 3 days. A protracted meeting followed, and I attended with my mind fully made up to go to the altar with the first that went. I attended every night, and none went to the altar till Sunday night, the 19th, when the Spirit said, "You are the oldest; go first, and see who will follow." I went, and the next night a young man, or rather a boy, came and knelt by me, and I went every night for 11 nights, during which time several found the Savior. Among them was a man who had signed the Murphy pledge last winter, who had not drawn a sober breath for over 5 years before that time. I heard him say that his craving for whiskey was so great that he neither ate nor slept for 3 days and nights after he signed the pledge, and his wife said she kept the coffee hot on the stove, and carried hot coffee to him very often, for she really feared he would go mad; but he is now clothed and in his right mind, and I think in a fair way to get to Heaven. Thank the Lord.

Well, I prayed as best I could for the Spirit to come down on me there at the altar, and the preacher and the members prayed and talked, and the more they prayed and talked, the harder my heart seemed to get. On the 11th night the Devil said, "There is no use trying; you are too old a sinner to be saved." But I remembered the man who was called to work in the vineyard at the eleventh hour, and that he was the first to receive his wages, and I

said "Get thee behind me, Satan." I prayed as best I could, as I walked home, and after I got home I prayed the Lord to show me his face before another 24 hours should pass.

Well, I went to bed about 10 o'clock and slept soundly till a little after 2 o'clock, when I awoke and heard the line.

"All to leave and follow thee,"

plainly repeated, and my fingers began to twitch and tingle, and pretty soon it was all over me, and I had to slap my hands for joy; and finally had to get up and dress, and kneel down and pray; then had to go and get the hymn book and look for the hymn that you quoted from, and after reading several hymns I went to bed again, but slept no more that morning, for joy. I do believe that I have felt more real joy and happiness since that time, than in all my life before, although I suppose I have lived about as happily as the common run of unconverted men, having had a kind and loving wife, and raised a family of sober and well behaved children.

Now, brother, I do feel that I can truthfully say amen, to the last line of the verse you quoted, that God and Heaven are my own, and that if I hold out faithfully to the end, I shall receive a crown of glory. I do think that if brother Sedgwick, or any one else, has the love of God in his heart, and will read the 13th chapter of Paul's First Epistle to the Corinthians, he will not say "Confounded 'Home Department'" or any other hard words about "Our Homes"; for brotherly love and charity cover a multitude of sins. "And now abideth faith, hope, and charity; but the greatest of these is charity."

Now, brother, you can make what use of this paper you please, for I feel that every word of it is the plain truth. From your loving brother in the Lord. O'Fallon, Ills. C. T. SMITH.

All these letters came almost at that one time, and none had ever come before telling of conversions that have resulted from the "Home Papers," nor have any such come since; yet I am sure other conversions have resulted from them. I am satisfied of this, that God moved the hearts of these three brothers to write so that their letters should reach me, just when I should be praying for light on this very matter. It may be interesting to read a farther letter from our friend Parshall.

We have a large Sabbath school at our school house, with about 60 scholars besides teachers and officers, and we raised \$18, in one day for a library. They have selected me as superintendent, and I think they could have done better. It makes me feel that there is a great responsibility resting on me, but I know that God will help me, and I have the prayers of Christians. JAMES PARSHALL.

Union Valley, Mo., May 9, 1879.

Do you know how anxious a parent is to hear from an absent child? Do you know how he dwells on and repeats the slightest incident connected therewith? And do you know how the eyes of the fond mother fill with tears when she hears of the absent one's good deeds, and that he is doing good among his fellow men? Well, my friend, when God has permitted you to be instrumental in saving a soul, you will always afterward have this feeling in regard to him. I wonder if the three whose letters I have given know how fondly I look for any word from them?

I wonder if friend P. has any idea of the pride and joy with which I read that he was the superintendent of a Sabbath school, and to know that a whole community of earnest Christians would probably grow up around him. This is the work that civilizes and educates the world, and that makes men in God's own image, of even the veriest savages that exist on the remotest islands of the sea.

Before leaving this point in my narrative,

I wish to give another letter received at about that time, that seemed to have been sent for the purpose of showing me that it was not only in my own country and nation that these Home Papers reached the hearts of my fellow men, but clear away on the other side of this globe had they cheered and encouraged faith in God, as the director of all our affairs in life.

LETTER FROM A MISSIONARY IN INDIA.

Dear Brother Root:—Although we are not engaged in bee culture, yet GLEANINGS IN BEE CULTURE, on account of the Home Department, has not been an unwelcome visitor. I have often found there new encouragement to prayer, and to trust in our heavenly Father. How blessed it is to trust Him! I want to tell you of just one case. Our *piece* have been getting rather low, and Miss Fron, Mrs. Sibley, and I have been praying for money, and hopefully looked for it in the English and American mail which arrived to-day. We had about sixty cents on hand. Our servant brought the mail, but in it was no money for us. The GLEANINGS for January came, and while I was reading the account of your own experience when in need, and how wonderfully God, in answer to prayer, sent you that \$500, and was finding courage and comfort in it, the post-man came, bringing a letter for Miss Fron. It took half of our *piece*, 30 cents, to pay the postage, as the sender in America had failed to put on enough postage, in which case double rates are charged. But, upon opening it, we found that God had hearkened to our prayer, and had sent us one hundred dollars. Oh, how our hearts went up to Him who hears the *rabens* when they cry, and feedeth them! "I have been young and now I am old, yet have I not seen the righteous forsaken, nor his seed begging bread."

At another time, not long since, we were quite out of *piece*. We laid the case before our Father. That day, one of the families here sent in 12 rupees, and, in a few days, before we needed it, 100 more came to us. Thus you see how God cares for us. That we get all that we ask for, all that *we think* we need, I do not say; but our real need is supplied, and we lack no necessarily good thing. How blessed it is to feel, yes, to know, that God regards us, listens to our cry, and reaches forth his Almighty arm to supply our needs. If Christian business men and farmers, and all Christians everywhere, would thus make God one with them in all their financial matters, there would be less debt, more confidence in one another, and infinitely less financial distress. I rejoice that you do not hesitate to testify publicly, to the fact that you make the Lord Jesus Christ an interested partner in all your business. May the dear Lord keep and bless you, as I know he will if you stick close to Him.

I feel a deep interest in "your boys," and hope that you may be abundantly blessed in your efforts to turn them to Christ. If they could realize just what they owe to Christ, they would all begin at once to love and serve him. Sin, in the human heart, is the same, the world over. In these poor people, it has more perfect sway. They can tell you a lie with as innocent an air, and with as much composure, as if it was the most solemn truth. Here sin manifests itself, as it does not in America. If the *secret history* of some of your boys could be written, I do not doubt that it would present as dark a page as that of many of these poor heathen children, who from a want of the sense of shame *openly sin*.

I sometimes think, too, that sin in the heart of a bad boy in America is about as stubborn a thing as we find it here. None but the Lord Jesus is able to cleanse the heart. But he *is able* and will give you victory in the work—the blessed work of trying to lead them to Himself. Perhaps, some day, some of those boys who now give you only trouble, annoyance, and insult for all your kindness to them, will rise up and call you blessed for your love and forbearance, and they, in love for the lost, will be going forth to teach darker minds and hearts, but not more wicked, in distant lands, of Jesus who saved them from a life of sin, degradation, and sorrow. God bless and save the boys, and help them to see the worth of a noble life, the joy, the true happiness that there is in a consecrated life. May you never "grow weary in well doing," for the influence of your life and work has already reached farther than you know.

I suppose that you would like to know something

of our work. At present, it is quite limited. Of course, first of all is the learning of the language. We have suffered many interruptions to study during the year, but are progressing quite rapidly now. Miss Fron and Mrs. Sibley have just commenced a little school for girls, teaching them to sew and to do different kinds of work, and teaching the Hindoostani language, in Roman characters.

We have a Sabbath school of English and Eurasian children. The Eurasian are the Indian and English races mixed. They speak English and are respectable people. There are some excellent Christians among them. Then there is a service in the evening for the people, a congregation of from 20 to 30 persons. This work is not unimportant as these people are born in the country and have the language perfectly, and, if they are earnest Christians, they are a power for good among the natives. We feel that there are one or two who are only waiting a plain call to forsake all and enter the mission work. Caste is the great obstacle to the work here. If a man breaks his caste, he might just as well be the one inhabitant of an iceberg in the midst of the Atlantic Ocean, as far as social life among his own people is concerned; and caste enters so into all the minutiae of life that the people are ever watchful for fear that they will transgress. Don't understand that caste prohibits *sin*; not at all, but rather encourages it. Many are tired of its oppressions and tyranny, but they fear it so much that they will not come out. They must come in bodies when they do come. In the south of India, they have been coming over in bodies. At one time, a thousand came in and threw down their idols, and asked to be taught of Christ.

We are in the centre of a country where there are no other missionaries. Going out 10 miles east, south, and west of us, there are, at least, 75,000 people—30,000 in Ellichpur, 11,000 in the Cantonment, and the rest in villages of 300 to 8,000. For this great number there are three missionaries,—Miss Fron, Mrs. Sibley, and myself. If Bro. Norton recovers, he will work among the Koorcoos. These number 90,000. Thus you see we do not lack for fields to till. But, Oh! the laborers are so few! There is the sowing, the watering, the tending, the waiting, and the gathering of every early ripened stalk, until the whole field is ripened for the harvest. I hope that we may have your earnest prayers for the work here. I feel my own insufficiency very deeply, but God does help me. In Him alone do I trust for needed wisdom and strength. I often feel like saying with Jeremiah, "Ah, Lord God! behold, I cannot speak, for I am a child." But then there come to me the blessed promises given to Jeremiah, and my soul is lifted up in God.

I trust that you may be greatly prospered in your business. I rejoice with all in the triumph of sound, right principle, in the full elections, and in the successful return to specie payments. Don't think that you must take time to answer this. I have long felt indebted to you for the encouragement I have received through GLEANINGS. God bless you.

Your brother in Christ, J. W. SIBLEY.
Ellichpur, East Beras, India, Feb. 7, 1879.

Boys' Department.

AS I am a boy yet and have not much money to spend, I save all I can. I do not use tobacco like all the other boys here: I think I can save that. I expect to have a nice lot of bees next year.

F. B. KRATZ.
Perkiomenville, Pa., July 22, '79.

I commenced this spring with one colony, and now have four, and they all seem to be doing well. Perhaps I am rather young for a bee keeper, only sixteen. The first swarm came out in June, the 23d, and has filled the hive full. The other two are not filled so full. I must brag a little over my neighbor; he bought 2 colonies, and a lot of hives, and they have not swarmed yet, and one of them is dead. So I have come out ahead.

WARREN H. FOLLAT.
Hartford, Pa., Aug. 8, 1879.

I am always glad to see boys of 16 come out ahead, friend F., but I do not like to see them brag when their neighbor's bees die; you did not mean to do this, did you?

The "Smilery."

This department was suggested by one of the clerks, as an opposition to the "Growlery." I think I shall venture to give names in full here.

BRO. A. I. ROOT:—I believe in my soul you are a scholar and a gentleman, and disposed to be kind hearted. My GLEANINGS run out, when I hadn't a cent; I asked to have it continued just a *little* longer, and to-day I received it all right. I now have money, and lots of it. Why, I expect I have \$12. or \$13.; besides my good wife has 50 cts. or a dollar!

DR. A. C. WILLIAMS.

Hugo, Ill., July 22, 1879.

The "Growlery."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

A FEW days ago we received a letter, addressed as follows:

"To Mr. or Mrs. A. I. Root, Medina, O. (Private Correspondence)."

The letter, when opened, was found to read as follows:

Sir:—About two weeks since, I sent to your address one dollar, asking you to send me your full sized smooth plane, and GLEANINGS for six months. Enclosed you will find a true copy of bill and draft of plane received. Now what have you got to say in justification, for swindling me out of 75cts? You have sent me an article that I did not want, and did not order, and charged me for it 50cts. more than it is worth. Now, if you have a clerk doing that kind of business, it is time you knew it. On the other hand, I think, if a man of your great moral pretensions will do a business of that kind, you may look for a warm hereafter. At all events (as I have plenty of means, and proof positive of fraud) I am bound to sift this matter to the bottom, unless you can give me a satisfactory explanation immediately.

Frankfort, Mich., July 14, 1879.

D. M.

There are two points which I wish to illustrate by this letter. The first is, that our friend takes it for granted that there was intentional fraud, because he paid 75 cts. for a plane, and received a 25c. one. From his letter, I should infer that the idea had never occurred to him, that it might have been a mistake, and unintentional. As it is human like to be hasty, and to lack charity, I can forgive him, and I have given the letter, principally, that we may all take a lesson from it, myself included. Let us be slow to anger, and slow in deciding that any one has a deliberate purpose of wronging us. The girl who put up the goods had, by mistake, picked up the smaller sized plane. They were neatly tied up ready for mailing, and from the outside appearance of the packages, there was little difference except in size. She has put up packages for mailing for a year or two, and this is almost the first mistake I ever knew her to make. A body ought to be excused, should they not, if they only make mistakes one time in a thousand? But, on the other hand, this may have been, and probably was, the first order friend M. had ever sent us; the first time, he got for his money a cheap and inferior article. What is to be done?

This brings me to the second point. The clerk was to blame, but I think I am to blame more. Such a mistake should not occur one time in 10,000; and I will tell you how this accident, and similar ones, may be avoided. The two kinds of planes are in the same drawer, and done up with the same colored paper. Each kind should have a drawer by itself, or at least an apartment in the same drawer, and a plain label should tell the name and the price, on the front of each drawer. Still farther, to prevent their being put, by any possibility or carelessness, into the wrong drawer, different colored wrapping paper should be used.

It has been intimated, and in terms, I am sorry to say, not as kind as they might be, that I have boys and girls employed to "put up things," instead of putting them up myself. This is true; I do not put up things myself, unless it is to show some clerk how,

but I devote my whole time and energies, towards looking over these boys and girls, and, if I should succeed by plans such as I have given you and others, in filling all orders you may send me, more promptly, and with more care, than do those who do it all themselves, you will not complain, will you? If we do our work badly, nobody will trade with us, and, pretty soon, instead of requiring half a hundred or more, I shall not need any one. May God help and give me wisdom, not for my sake, but for your sakes, my friends, and for those to whom I am giving employment here, to avoid these mistakes that are so disastrous and annoying all around, and may he help us all to have charity, one for another.

P. S.—Another plane was sent our friend, and he was allowed to keep both, to pay for the trouble we had made him.



E. A. SHELDON'S APIARY, INDEPENDENCE, IOWA.

PICTURES OF APIARIES.

OUR engraver has been practicing on some of the pictures of apiaries that have been sent us in times past. Below we give you one of them, with a letter from its owner, in regard to it.

Friend Novice:—Yours of July 15th received. In reply, I would say that I am sorry you have been to the expense of having the wood-cut made, as that was taken five years ago when I lived in town, on a lot 5x10, having fifty swarms of bees. So you see we had to have our bees in pretty close quarters.

In the foreground is myself, watching for the first appearance of those beautiful bees, 30 days after introducing one of Gallup's Italian queens. Mrs. S. is standing by the extractor, and her daughter is sitting by her grandfather, who is in the arm chair reading the camp meeting daily. The rest are friends who were in at the time. If you print this, I

would like to have you print the one I am now going to have, so you can see the improvements that have been made within five years. I will send you the picture and description of the same, in a few days.

I am now living one mile from the centre of our town, where I have ample room. I have 165 swarms, besides 23 divisions of nuclei, where I am raising queens from an imported mother. I have arranged my bees on the hexagonal plan, twelve feet from centre to centre. Gentlemen that have traveled a great deal say that I have the best kept apiary in the state.

Now, friend Novice, I am going to have a picture of this apiary taken on the first suitable day, and then, I assure you, it will be a picture worth looking at.

E. A. SHELDON.

Independence, Ia., Aug. 21, 1879.

All right, friend S., give us the better one, and we will try to show it to "all round."

Humbugs & Swindles,

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

THE notorious Gillespie, who demands black-mail from every body using a two story hive, is now reported as being in Butler Co., Mo. He has not only swindled the public by his common sense bee hive, but he has swindled the patentee himself. How sad! Is there indeed no honor among thieves?

There seems to be no limit to the audacity and presumption of Mrs. Lizzie Cotton and her husband, for it appears that both are engaged in the business, she doing all or the greater part of the advertising and correspondence. Even the signature of the express agent at West Gorham, Maine, was obtained by fraudulent means, and attached to a letter of her own writing, which she publishes in her circular. I have taken pains to get letters from both the postmaster and express agent at her place of residence. Wherever she or Mitchell can find a locality which the bee journals have not reached, they are sure to find victims. Complaints of his division board fraud keep coming through almost every mail; we cannot take the time to go over this ground by letter, so many times, so you will have to take this for your answer.

Mrs. Cotton's statements are utterly false from beginning to end. She will either keep your money, as she has that I have sent for her goods, or she will send a worthless hive that will do nothing at all like what she claims. Mitchell has no patent at all on the hive he sells, neither is it even his invention. Neither he nor any one else has a patent on division boards as he claims; the idea is as absurd as it would be to patent putting bees into a hollow log. A copy of his patent claims was given in our July No., 1878.

BEEES THAT DID NOT SWARM, AND WHAT TO DO WITH THEM.

ALSO SOMETHING ABOUT THE WINTERING EPIDEMIC.

FRIEND N.:—Many of our friends complain that their bees did not swarm as often as usual, or as much as their owners wished, the present season, and this is, perhaps, the case wherever bees were weak last spring. Many stocks that were weak early in the season have filled up with honey and brood, and are now almost running over with bees. Where such is the case and an increase of stock is desired, it can easily be had by taking from one up to several frames (whatever number can be spared) of bees and brood, from several hives, and filling up an empty hive with them. By giving the new swarm, thus made, a laying queen, they are ready for winter at once. The hives from which the bees and brood were taken should be filled with frames of empty comb or fdn. Care must also be taken not to rob the old stocks of their queens

and to leave honey enough for winter, as we cannot depend much on the yield of honey during the remainder of the season. If I could prevent it, I would not have any natural swarms, but would obtain all my increase in the above way, after taking off the surplus honey.

It is true, friend N., carrying our bees into the house in the fall and out again in the spring is considerable trouble, but is it any more than it is to prepare them for wintering on the summer stand? I think not. And then we know they are safe from Arctic waves, if not from epidemics.

I never carried my bees out for a fly during the winter, but once, and that was one year ago last winter, when I carried them out Jan. 1st, and in again about the 15th, and was paid for my trouble by saving all my stocks in my home apiary, while, in my northern one, where they were wintered on the summer stand, packed in chaff, I lost several swarms.

I do not think spring dwindling deserves the name of a disease. It is caused by the old bees dying off before enough young ones are reared to take their places. No one ever saw a colony that was full of young bees the first of March, dwindle away and die. By keeping our bees warm during the winter, they will rear plenty of young bees and be safe, even in such springs as the last one.

The bee cholera, or dysentery, is no doubt a disease; but it is simply the effect produced by certain causes, prominent among which, I would mention cold, disturbance during confinement, &c., all of which may, in my opinion, be remedied.

I, too, am going to make a chaff, or rather a sawdust, tenement hive, as I have rather more bees in my home apiary than is best to put in one room to winter. I think I will make a slight improvement on the one shown in the Aug. No. of GLEANINGS, by having the entrances at the ends instead of the sides, so that the bees will not have to fly through the drip from the eaves, when they come in during showers as they often do.

JAMES BOLIN.

West Lodi, Ohio, Aug. 13, 1879.

Thanks, friend B. Your ideas in regard to the dwindling are sound and sensible, but are you not mistaken when you say, "no one ever saw a colony that was full of young bees the first of March dwindle away and die"? I had some die, that had a "good lot" of young bees on the first of March, but I should hardly call them "full;" they were so strong that I selected them to build out fdn. stamped on paper, but they died. What do the rest who have had the dwindling say to it?

REMOVING WAX AND PROPOLIS BY STEAM.

A friend sends us the following which will prove very serviceable when one has a steam boiler convenient.

I have tried all the formulas for cleaning wax from utensils, and, in my experience, have found that concentrated lye cleans it off faster and more thoroughly than anything else. All the methods are troublesome, and it takes time to clean, especially the perforations. My plan of cleaning wax from the perforated basket of the wax extractor is, to have two pieces of gas pipe, each one foot long, just large enough to screw into the sprinkler of the fountain pump. Attach the sprinkler to one end of the pipe, procure a globe valve, and screw this on the other end, screw one end of the other piece of pipe on the globe valve, and the other end into the steam boiler, about one or two inches below the water line. Open the valve, and spray the articles covered with wax, with steam and hot water. You will be astonished to find how quickly it makes things look like new.

Iberville, La., Aug. 8, '79. JAMES A. PRITCHARD.

CHEAP brown sugar (and maple sugar) does nicely to feed bees for building up in the fall, but while it is more expensive, it is not as safe even, as grape sugar for winter stores. For their winter food, use nothing cheaper than coffee A.

Honey Column.

Under this head, will be inserted free of charge, the names of all those having honey to sell, as well as those wanting to buy. Please mention how much, what kind, and prices, as far as possible. The prices quoted in our cities for honey are, at present, too low, to make it worth while to publish them. As a general thing, I would not advise you to send your honey away, to be sold on commission. If near home, where you can look after it, it is often a very good way. By all means, develop your home market. For 25cts., we can furnish little boards, to hang up in your door yard, with the words "Honey for Sale" neatly painted. If wanted by mail, 10c. extra for postage. Boards saying "Bees and Queens for Sale," same price.

I WILL sell ten thousand lbs. of first class, white honey, at 7 cts. per lb., delivered at depot here, or on steamboat; bbls. thrown in. Shreveport, La., Aug., '79. C. R. CARLIN.

I have four barrels of white clover and basswood honey for which I will take 7 cts.; purchaser to pay for barrels. Also 1,000 lbs. comb honey in 1½ and 2 lb. sections, for which I will take 10 cts. in cash. Shellsburg, Ia. Aug 11, '79. ROBT. QUINN.

I have 1,000 lb. of nice, clover, comb honey, in 1½ and 2 lb. sections. I will sell it, in any quantity at 12½ cts.; each case holds 28 lb. I will sell light extracted honey at 8 cts. If wanted in 10 gallon kegs, send \$10.00. Golden-rod, comb honey, 10 cts. per lb., and extracted 7 cts. R. S. BECKTELL.

New Buffalo, Berrien Co., Mich.

I have 5 barrels of honey, that I will sell for 8c. per lb., with bbls. thrown in. F. W. HOLMES. Coopersville, Mich., Aug. 1879.

CHICAGO.—Honey—Choice, in single comb boxes, 12@14c. Extracted, 6@8c.

Bees-war.—Choice, yellow, 20@22c. Darker grades, 12½@15c.

NEW YORK.—Honey—Best comb, 15@16c. Extracted, 6@9c.

Bees-war.—Choice, 25c.

CINCINNATI.—Honey—Best, in single comb boxes, 10@12c. Extracted, 8@10c.

CALIFORNIA.—Honey—New comb, 12½c.; Old comb 8c. Extracted, 7c.

Bees-war.—Best, 30@31c. For darker colored, 20@22½c.

THE sweet pepper, *Clethra alnifolia*, has been in bloom on our grounds nearly a month, but as yet we have never seen a bee on it.

THE troubles I mentioned in July No., in regard to the mail matter, are ended for the present at least, for we have had no loss of that kind, for weeks past. I thank God for having answered that prayer, and I pray that the one who wronged us may be brought to justice, and, if possible, may become a converted man.

THOSE who undertake to deal in supplies should be careful not to quarrel with their customers. If you cannot agree you can certainly agree to disagree, and, if you decide to have no more deal with each other, part friends. Straighten up all past transactions, in a way that will be satisfactory, even if it does cost you a "good bit" of money, and then be more careful about what promises and agreements you make in the future. Promise little, give much, and don't ever "get mad," if you wish to hold your customers.

WHAT YOU ARE TO DO WITH THE BEES THIS MONTH.

If you want your hives full of young bees in March, as friend Bolin advises, see that they are full of young bees this month. If they are not getting enough honey to keep brood rearing going on briskly, feed them a little every day. We use grape sugar for the purpose, and feel very much pleased with it. The manufacturers have very much improved it recently, and it now looks and tastes much more like cane sugar. By feeding just about what the bees consume, you can easily manage so as to have little or none of it stored in the combs.

NUCLEUS SWARMS AND QUEENS.

One-half lb. of bees, sent in wire basket, for \$1.00 in addition to the price of the queen. These are more bees than are usually sent in two frame nuclei, while the express charges are less. They can readily be built up to a full stock, with brood from other hives, and save all risk of introducing.

Tested Queens.....	\$2 50
Warranted Queens.....	1 25
Unwarranted Queens.....	1 00

My queens are bred from best imported Italian queens, and I warrant safe arrival and perfect satisfaction.

E. M. HAYHURST,

9d Kansas City, Mo.

STAMPS, RUBBER DATING AND ADDRESSING,



No. 1.



No. 3.

Address only, like No. 1, \$1.50; with business card, like No. 2, \$2.00; with movable months and figures for dating, like No. 3, \$3.00. Full outfit included—pads, ink, box, etc. Sent by mail postpaid. Without ink and pads, 50c less.

Put your stamp on every card, letter, paper, book, or anything else that you may send out by mail or express, and you will save yourself and all who do business with you "a world of trouble." I know, you see.

A. I. ROOT, Medina, Ohio.



No. 2.

Am. Silver Watches For \$9.50

In all my experience in the Watch and Jewelry Business, I have never before seen a good Silver Watch for the low price of \$9.50. I have just succeeded in getting, of the American Watch Co., a good strong

SILVER WATCH, FULL REGULATED, AND IN Running Order,

That I will mail to any address for the above price; and if it does not please you, you may return it within 10 days, and get your money. Or I will send you the Watch, for 20 subscribers, at \$1.00 each. You can have either hunting or open face, and such a Watch, for a present, ought to make any boy (or man either) happy.

A. I. ROOT, Medina, O.

BEE KEEPERS! Send 5c to A. J. King & Co., 61 Hudson St., New York, for a copy of their Journal, and Price List of Extractors, Smokers, etc., etc. Grand Inducements to Live Agents. 4tf

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Twenty-First Edition Circular and Price List, mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of postage required.

To Canada, *merchandise* by mail is limited to 8½ oz., and nothing can be sent for less than 10 cents.

A B C of Bee Culture, Five Parts complete in one, paper cover.....		1 00
The same, neatly bound in cloth.....		1 25
Single Parts, in paper, each.....		25
15	Alighting Board, detachable (See A B C) \$	10
Ailsike Clover. See seeds.		
Balances, spring, for suspended hive (60 lbs.)		8 00
Barrels for honey.....		2 50
" " waxed and painted.....		3 50
Basket for broken combs to be hung in the Extractor.....		25
Basswood Trees for planting. See price list.		
Bees, per colony, from \$7 to \$16. See price list.		
10	Bee-Hunting Box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS.....	50, 60, 75
10	Blocks, iron, for metal cornered frame making.....	15
Buckwheat. See seeds.		
10	Burlap for covering bees, 40 in. wide, per yd	10
Buzz-Saw, foot-power, <i>complete</i>		35 00
Buzz-Saws, extra, \$5, to \$3.50. See price list.		
60	Buzz-Saw mandrel and boxes complete for 6 inch saws (no saws included).....	5 00
The same for 7 and 8 in. saws (not mailable)		7 00
3	Cages for queens, provisioned (See price list)	1 00
30	" " per doz.....	1 00
20	Candy for bees, can be fed at any season, per lb.....	07
Cans for shipping extracted honey (See Honey), from 25c to \$1.00.		
0	Cards, queen registering, per doz.....	06
0	" " per 100.....	40
60	Chaff Cushions for wintering (See A B C) ..	35
9	" " without the chaff.....	10
Chaff Hive (See Hives).....		5 00
Cheese cloth, for strainers, per yard.....		06
Clamps for making section boxes.....		75
Clamps for transferring, package of 100.....		25
10	Climbers for Bee-Hunting.....	2 50
Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles.....		1 50
Comb Foundation Machines complete \$22 to 100 00		
10	Comb Holder to put on edge of hive.....	25
Comb in metal cornered frames, complete		25
20	Corners, metal, per 100.....	50
20	" " top only, per 100.....	60
15	" " bottom, per 100.....	40
Corners, Machinery complete for making \$250 00		
Crate for shipping comb honey. See Hives.		
40	Division Boards of cloth and chaff.....	20
12	Duck, for covering frames and for feeders, 29 inches wide, per yd.....	20
15	Enameled Cloth, bees seldom bite or propolize it, per yard, 45 inches wide, 20c. By the piece (12 yards).....	18
Extractors, according to size of frame, \$6 50 to 10 00.		
" Inside and gearing, including Honey-gate.....		5 00
" Hoops to go around the top.....		50
" " per doz.....		5 00
5	Feeder, Simplicity (See price list) 1 pint.....	05
7	Feeders, 1 quart, tin.....	10
4	The same, half size.....	05
25	The same, 6 qts, to be used in upper story	50
Feeders, open air.....		25
2	Files for small circular rip saws, new and valuable, 20c; per doz, by express.....	2 00
" The same, large size, double above prices.		
" 3 cornered, for cross-cut saws, 10c; doz		1 00
Foundation. See Comb Foundation.		
60	Fountain Pump, or Swain Arrestor.....	8 50
5	Frames with sample Rabbet and Clasp....	10

18	Galvanized Iron Wire for grapevine trellises per lb. (about 100 feet).....	20
25	Gates for Extractors tinned for soldering..	50
Gauge for planing lumber, brass.....		50
" " making hives (See Hives).....		50
50	Gearing for Extractor with supporting arm	1 25
Glass. See price list.		
0	GLEANINGS, per year.....	1 00
For prices of back vol's, see price list.		
Gloves. See Rubber Gloves.		
Grape Sugar for feeding bees. See price list.		
Grape vines for shading hives. See price list.		
Hammers and nails. See price list.		
Hives from 50c to \$6 25. See price list.		
Honey. See price list.		
" Plants. See seeds.		
0	Honey Knives, straight or curved blade....	1 00
" " ½ doz.....		5 00
" " ½ doz by Express.....		4 75
Jars for shipping extracted honey. See Honey.		
Labels for honey, from 25 to 50c per 100; for particulars see price list.		
0	Lamp Nursery, for hatching queen cells..	5 00
Larvae, for queen rearing, from June to Sept.....		25
15	Leather for smoker bellows, per side.....	50
0	Lithograph of the Hexagonal Apiary.....	25
0	Magnifying Glass, pocket.....	50
0	" " Double lens, brass, on three feet.....	75
0	Medley of Bee-Keepers' Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0	Prepared objects for above, such as bee's wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard.....	10
Nails. See Hammers and nails.		
10	Opera Glasses for Bee-Hunting.....	5 00
18	Paraffine, for waxing barrels, per lb.....	20
0	Photo of House Apiary and improvements	25
Planes and Planers. See price list.		
15	Pruning saws for taking down swarms, 75 and 85	
0	Queens, 25c to \$6 00. See price list.	
1	Rabbets, metal, per foot.....	02
0	Rubber Gloves, \$1.50 and \$1.75. See price list.	
Rubber Stamps, \$1.50 to 3.00. See price list.		
Rules. (See Pocket Rules) 12 and 20c.		
Salicylic acid, for foul brood, per oz.....		50
10	Saw Set for Circular Saws.....	75
Saws. See Circular Saws.		
Scales for weighing honey, etc. See price list.		
0	Scissors, for clipping queen's wings.....	40
0	Screw Drivers, all metal (and wrench combined) ¼ inch, 10c; 5 inch, 15c. Very nice for foot-power saws.	
6	Section Boxes, fancy, hearts, stars, crosses, &c., each.....	05
Section Honey Box, a sample with strip of fdn. and printed instructions.....		05
Section Boxes in the flat by the quantity, \$6 00 per thousand and upwards, according to size; for particulars, see price list.		
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive (See price list)	10

SEEDS OF HONEY PLANTS.

18	Seed, Alsike Clover, raised near us, per lb.....	30
18	" Catnip, good seed, per oz. 10c; per lb.	1 00
0	" Chinese Mustard, per oz.....	15
18	" Mellilot, or Sweet Clover, per lb.....	35
18	" White Dutch Clover, per lb.....	35
18	" Motherwort, per oz. 10c; per lb.....	1 00
18	" Mignonette, per lb. (20c per oz.).....	1 40
" Simpson Honey Plant, per package		05
" " per oz.....		50
18	" Silver Hull Buckwheat, per lb.....	10
" " " peck, by Express		75
" Common " per peck.....		50
18	" Summer Rape. Sow in June and July, per lb.....	15

A small package of any of the above seeds will be sent for 5 cents.

Separators, tin, for section boxes. See Section Boxes.

5	Sheets of Enameled Cloth to keep the bees from soiling or eating the cushions....	10
Shipping Cases for 48 section frames of honey.....		60
The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c.		
1	Slate Tablets to hang on hives.....	01

SMOKERS.

	Smoker, Quiuby's (to Canada 15c extra)	1 50 & 1 75
5	" Doolittle's, to be held in the mouth	25
	" Bingham's	\$1 00; 1 50; 1 75
25	" OUR OWN, see illustration in price list	75
00	Soldering Implements	1 00
	Swarming Box	75
2	Tacks, tinned, per paper, (three sizes)	05
	For larger quantities see Hammers and nails	
5	Thermometers	21
0	Veils, Bee, with face of Brussels net, (silk)	75
	The same, all of grenadine (almost as good)	50
	Veils, material for, grenadine, much stronger than tarlatan, 21 inches in width, per yard	20
	Brussels Net, for face of veil, 29 inches in width, per yard	1 50
	Wax Extractor	3 50
	Copper bottomed boiler for above	1 50
5	Wire cloth, for Extractors, tinned, per square foot	10
2	Wire cloth, for queen cages	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively	
3	Wire cloth, painted, for shipping bees, 14 mesh to the inch, per square foot	05
	Wire for grape vine trellises. See Galvanized iron wire	

All goods delivered on board the cars here at prices named. A. I. ROOT, Medina, Ohio.

NOW IS THE TIME TO PROVIDE

CHAFF HIVES

FOR YOUR BEES TO WINTER IN.

They not only pay their cost almost every winter, but they pay just as well for summer use. See what a friend writes on a postcard.

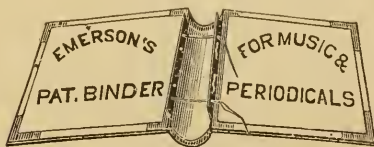
Mr. Root:—What is your price for chaff hives, already filled with boxes, such as Wm. T. Seal, of Chadd's Ford, got of you. Send me price list of hives, and price of 50 chaff hives. Bees have done well only in this kind of hive this summer, on account of cold. It was too cold, in other hives, to stay nights in boxes. I want the frames to hold the one lb. boxes. J. & J. T. WILLIAMSON.

Dilworthtown, Chester Co., Penn., Aug. 24, '79.

For 50 chaff hives or more, ordered during this present month, every thing in the flat, including nails and tin roof, I will make the price \$1.30 each. This is for the hive for winter.

For prices of the inside work (which you will not need until another season), also for prices of hives set up and painted, and for hives in lots less than 50, see price list.

A. I. ROOT, Medina, Ohio.



You can not look over the back No's of GLEANINGS or any other Periodical with satisfaction, unless they are in some kind of a Binder. Who has not said—"Dear me, what a bother—I must have last month's Journal and it is no where to be found." Put each No. in the Emerson Binder as soon as it comes, and you can sit down happy, any time you wish to find anything you may have previously seen even though it were months ago.

Binders for GLEANINGS (will hold them for one year), gilt lettered, free by mail for 50, 60, and 75c, according to quality. For table of prices of Binders for any Periodical, see Oct. No., Vol. II. Send in your orders. A. I. ROOT, Medina, Ohio.

Names of responsible parties will be inserted in either of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per year.

\$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with * use an imported queen mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent before July 1st. If wanted sooner, see rates in price list.

*E. W. Hale, Wirt C. H. W. Va.	1-12
*A. I. Root, Medina, Ohio.	
*H. H. Brown, Light Street, Columbia Co., Pa.	7-31f
*E. M. Hayhurst, Kansas City, Mo.	1-12
*J. M. C. Taylor, Lewiston, Fred. Co., Md.	1-12
*Paul L. Viallon, Bayou Goula, La.	8td
*J. Oatman & Sons, Dundee, Kane Co., Ill.	2-1
Miller & Hollam, Kewaskum, Wash Co., Wis.	4-4
*J. T. Wilson, Mortonsville, Woodford Co. Ky	4-4
*S. D. Moore, Atlanta, Ga.	5-10
*Amos Johnson, Sugar Grove, Warren Co., Pa.	5-10
H. S. Elkins, Kennedy, N. Y.	5-10
J. L. Bowers, Berryville, Clarke Co., Va.	7-12
Owen Southgate, Smithville, Burl. Co., N. J.	8-10
*King & White, New London, O.	8td
L. A. Best, Best, Lehigh Co., Penn.	10

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.	
H. Scovell, Columbus, Cherokee Co., Kans.	4-3
Nichols & Elkins, Kennedy, N. Y.	5-10
P. L. Viallon, Bayou Goula, Iberville Par., La.	9td

Bees For Sale.

ONE DOLLAR PER LB.

Names inserted in this department the first time without charge; afterward, 20c each insertion, or \$2.00 per year.

Those whose names appear below signify that they are willing to furnish bees, without hives, during the coming month, at \$1.00 per lb., the purchaser being required to bear all express charges. Safe arrival guaranteed.

[Express Cos. have promised to return cages to owners free of charge, if made very light.—Ed.]

H. R. Boardman, East Townsend, Ohio.	8-10-1
J. E. Vannmeter, Emison, Knox Co., Ind.	9-10
A. I. Root, Medina, Ohio.	
O. Foster, (50c per lb.) Mt. Vernon, Linn Co., Ia.	2t

I SHALL continue to keep on hand, and offer at reasonable rates, a full variety of Bee-Keepers' Supplies; such as

Muth's All Metal Honey Extractors,

Uncapping Knives,

Wax Extractors, etc. Also

Langstroth's Bee Hives, and any Parts thereof,

1 & 2 lb. Square Glass Honey Jars, with

Tin Foil Caps and Labels, [Corks,

½ lb. Glass Tumblers,

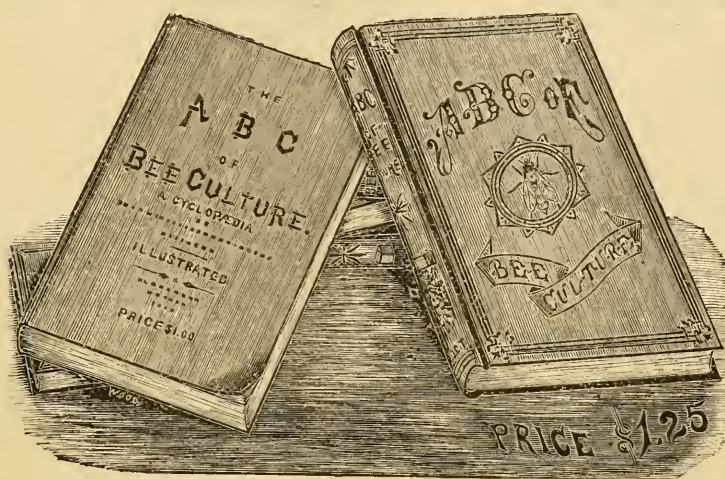
Fruit Jars, etc.

Comb Foundation, Bee Veils, Gloves, Straw Mats, Alsike Clover, and a variety of Garden and Field Seeds, etc., etc. For further particulars, address

CHAS. F. MUTH,
976 and 978 Central Ave.,
Cincinnati, O.

THE

A B C of BEE CULTURE.



FOR several years, it has been my ambition to be able to write a book on bee culture, so clear and plain that not only any boy or girl, but even an old man or woman, with the book and a hive of bees, could learn modern bee culture, and make a fair, paying business, *even the first season*. This is a great undertaking, I grant; and it will require some one with far greater wisdom than mine, to do it the first time trying. After watching beginners, and answering their questions almost constantly, for years, I came to the conclusion, that the only way to do it was to "cut and try," as carpenters say, when they can't get the exact dimensions of the article they wish to make.

To cut and try on the A B C book, I have invested over \$2,000 in type, chases, etc., sufficient to keep my whole book standing constantly in type, that can be changed at a moment's notice. The books are printed only as fast as wanted, and just as soon as I see I have omitted anything, or have made any mistake, the correction is made before any more books are sent out. To show you how it works, and how it succeeds, I will give you an illustration.

A beginner writes to know if it is of any use to keep a queen, after she is eighteen days old and does not lay. Now I know very well that a queen should lay when from ten days to two weeks old; and also, that they will sometimes not commence until they are three weeks old, and then make good queens. Now, although I directed that they should be tossed up in the air, to see if their wings were good, when they did not lay at two weeks of age, I did not say, if their wings proved to be good, how long we should keep them. If I could spare the time of the colony, I would keep a good looking queen that could fly well, until she is 25 days old; if crowded for a place to put cells, I would kill all that do not lay at 18 or 20 days old.

I have just put the above in the A B C, and that is just the way I am going to keep doing. You see, you beginners are, ultimately, to build up the book.

Hope the new shop will be as great a success as the A B C has been; for I consider it of more benefit to persons going in the business than anything yet published.

R. N. MCINTYRE.

Daytona, Fla., Dec. 28, 1878.

The book, as it is now, contains about 275 pages and about 175 engravings. It is furnished complete in one, or in 5 different parts. The contents and prices are as follows:

Part First, will tell you all about the latest improvements in securing and Marketing Honey, the new 1 lb. Section Honey Boxes, making Artificial Honey Comb, Candy for Bees, Bee Hunting, Artificial Swarming, Bee Moth, &c., &c.

Part Second, tells all about Hive Making, Diseases of Bees, Drones, How to Make an Extractor, Extracted Honey, Feeding and Feeders, Foul Brood, etc, etc.

Part Third, tells all about Honey Comb, Honey Dew, Hybrids, Italianizing, King Birds, The Locust Tree, Moving Bees, The Lamp Nursery, Mignonnette, Milkweed, Motherwort, Mustard, Nucleus, Pollen, Propolis, and Queens.

Part Fourth tells all about Rape, Raspberry, Ratan, Robbing, Rocky Mountain Bee Plant, Sage, Smokers, including instructions for making with illustrations, Soldering, Sourwood, Stings, Sumac, Spider Flower, Sunflower, Swarming, Teasel, Toads, Transferring, and Turnip.

Part Fifth tells about Uniting Bees, Veils, Ventilation, Vinegar, Wax, Water for Bees, Whitewood, and Wintering. It also includes a Glossary of Terms and Abbreviations used in Bee Culture.

All are Profusely Illustrated with Engravings.

Nothing Patented. Either one will be mailed for 25c; ½ doz., \$1.25; 1 doz., \$2.25; 40, \$6.00.

The five parts bound in one, in paper, mailed, for \$1.00. At wholesale, same price as GLEANINGS, with which it may be elbbed. One copy, \$1.00; three copies, \$2.50; five copies, \$3.75; ten, copies, \$6.00.

The same neatly bound in cloth, with the covers neatly embellished in embossing and gold, one copy, \$1.25; three copies, \$3.25; five copies, \$5.00; ten copies, \$8.50. If ordered by freight or Express, the postage may be deducted, which will be 3c on each 25c book, 10c on the complete book in paper, and 12c each, on the complete book in cloth.

A. I. ROOT, Medina, O.

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TO-DAY, Sept. 30th, only 4,397 subscribers, Whew!

The large picture of Our Own Apiary, will be given next month.

MOST Queens stop laying this month unless the colony is fed daily; will the A B C class please take notice, instead of writing that they are queenless.

OUR new price list, carefully revised, and a great deal larger, will be sent to any body on application. It will be sent to all subscribers with the last number of the year.

QUEENS can be introduced now as well as at any time, and, as but little brood is being reared, it is the most economical time in the year to have a colony queenless. We shall be prepared to furnish them, not only during all this month, but probably all of next.

ONE dollar sent for GLEANINGS now, pays for it the balance of this year, and the whole of 1880. To all of our old friends who send us a dollar during this present month, for GLEANINGS next year, we will give a still better present; see notice in another place.

THE $\frac{1}{2}$ lb. of bees with a dollar queen, that friend Hayhurst sent us last May, mentioned on page 210, June No., has increased of itself to a fine colony of bees. The queen he sent, after being tested, was sold for \$3.00, and they raised another, besides gathering a full supply of stores for winter. Was not that \$2.00 rather a profitable investment?—Come to think of it, I did not pay anything; the bees and queen were a present.

ANY person sending us \$1.00 for GLEANINGS for 1880, during this present month of October, may have as a premium the last 3 Nos. of 1879, or any one part of the A B C, or a photo of "Novice and Blue Eyes," or a lithograph of our old apiary, or the 25c. plane, or a two foot pocket rule, or last, but not least, the beautiful hammer with metal handle inlaid with black walnut, shown on page 326, Aug. No. Now, to avail yourself of this offer, you must mention it when you send the dollar, and tell what present you want, for our clerks have no time to hunt up back correspondence, at these very low figures.

THE cheap candy works beautifully; a moderate colony will take out of the tray from 1-4 to 1-2 lb. daily, after they get the "hang of it." For the first day or two, they sometimes use it but little. The flour can be stirred in easiest when the grape sugar is first taken from the stove; but the coffee sugar must not be put in until it is perfectly cold, or it will not harden. For 10c., we will mail you a small tray of it, sufficient to try it on your hives. This little tray will also show you how thin stuff may be nailed with the new wire nails; and, on the back of it, is pasted printed instructions for making and feeding the candy.

If your young queens reared late in the fall won't lay, toss them up when 15 days old, to see if their wings are good. If so, feed the colony every day, as I have directed on page 380. If she does not lay after a week, put her in a strong colony and give her the flour candy; this will generally succeed, if there are drones, and there are almost always, even if you do not know it. Sometimes when you cannot make them lay in the fall, they will lay all right next spring; but of course you are never to sell a queen until you have seen her laying freely. It would be safer not to sell her until some of the brood was capped, to be sure she was not a drone layer.

GLEANNINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VII.

OCTOBER 1, 1879.

No. 10.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.

Established in 1873.

TERMS: \$1.00 Per Annum in Advance; 3 Copies for \$2.50; 5 for \$3.75; 10 or more, 60c. each. Single Number, 10c.

SCRAPS AND SKETCHES. NO. 10.

LOTS OF BEES AND CHAFF CUSHIONS.

IN the autumn of '78, I commenced preparing my bees for winter, in Oct. My hives are of such shape that I can take out four or five frames, turn the remaining six or seven frames half way around, and then put a chaff cushion on each side of them. I not only put a chaff cushion on each side, but I put on an upper story, and put a chaff pillow on top of the frames, and then banked sawdust around the hives until it reached half way to the top of the lower story. Before the bees were packed, however, they were made very strong by uniting nuclei, and doubling up swarms. I have taken bees that were "straggling round" on 22 frames, and crowded them on to six frames; the last ones to enter had to use their "elbows" pretty freely to get in, but they did it. I tell you, one who has never tried it will be astonished to see in how small space a large swarm of bees can be packed. By the way, I think that about as good protection as bees can have, is *bees*. The above method of wintering bees seems to answer very well, but it requires too much "fussing and bother," and costs too much for cushions; so I am going to give the chaff hives a trial the coming winter.

WINTER DWINDLING.

One colony (formed by uniting two others) commenced, in one sense, to dwindle even before cold weather began. It was a strong swarm, with plenty of honey, and was well packed; but, every morning, I would find a handful of dead bees in front of the entrance. During the winter, the snow lay about the hives a foot deep, and the warm air from the hives melted the snow around the entrances, until there was a little cave, as large as a half bushel, in front of each hive. The bees brought their dead bees out into these caves, and, whenever I made an examination, I seldom found more than a handful of dead bees in front of any hive, unless it was the "dwindling one;" from that, two or three times, I took away as much as a hatful of dead bees. One warm day in March, I opened the hive and took another "hatful" of dead bees from the bottom board, and I don't believe the hive contained a "hatful" of *live* bees. I put them upon three frames, and packed them up well, but the last cold "snap" was too much for them.

SPRING DWINDLING.

Early in April, I examined my bees, and found them in good condition; but, when I looked at them

a week later, I found that one stock had "spring dwindled" to almost nothing. The queen was alive, and I tried to save her and the few remaining bees, by giving them two frames of bees and brood. I caged the queen two days, but the weather was cold for a few days after I released her, and when it was warm enough to open the hive, I found the bees building queen cells. I shook the bees in front of the weakest swarm, and returned the brood frames to the hives from which they were taken. I had two more swarms that dwindled, but I saved them by changing places with them and two strong swarms. I do not know whether it *paid* or not. I should have united the dwindling swarms, but I wanted to save the queens.

To sum up, I went into winter quarters with twelve swarms, and came out with ten; and these are the only bees I have lost since I commenced keeping bees in movable-comb hives. Most of the bee-keepers in this vicinity lost, at least, half of their bees, while many lost them all. I attribute my success to "lots" of bees and chaff cushions.

Perhaps some of you think, if I commenced with four swarms two years ago last spring, I ought to have more bees. Well, if I had not sold any, I presume I would now have, at least, 40 or 50 swarms; but I find it fully as profitable to raise bees for sale, as to raise honey.

W. Z. HUTCHINSON.

Rogersville, Mich.

There, friend Bolin, will you just tell what made friend Hutchinson's bees die as they did, if there was no disease in that hive? I can think of but one reason, and that is that, in uniting, he secured a large colony, but of bees of too nearly one age, and that they died off as they did, of old age and nothing more. If the colonies that composed these were all of them rearing brood briskly up to the time of uniting, I do not know but that I shall give it up.

DO BEES CHOOSE A LOCATION BEFORE SWARMING?

THERE has been much said pro and con on this question, and it is still far from being settled in my mind. I have been familiar with bees for fifty years. I can just remember when my father brought the first bee skep or colony home, I being just four years old. He got them of a near neighbor that kept about 30 or 40 hives, and was always looked up to as law and gospel on the bee business. He did nothing but keep bees and teach

school. He was a good Christian man, and I used to love to hear him talk bees, especially in swarming time. He would tell how the colony was ruled by a king, and in swarming time they would raise another king, and then the two kings would fight, and the one that got whipped would have to leave with a part of the bees; and the reason they clustered on a tree was so the king could have a rest after such a hard battle; and if they happened to return without lighting he said the king was unable to fly after such a hard battle, and must rest until the next day, when he would lead his party out again.

Query:—I wonder if Novice's theories will seem so ridiculous to the next generation, 50 years hence.

Well, my father died and I bought out the entire lot of bees, just 35 years ago, and went enthusiastically into the bee business. I made a lot of square box hives that would hold about one bushel (no patents), and waited patiently for swarming time. Well, on the 28th of June, a large swarm came off. I hived them, and they went to work all right. On the first of July, there issued another large swarm, which, after circling around awhile, returned; not, however, to the old hive, but alighted on another hive that already had more bees than could get inside, and remained on it all day. The next day being Sabbath, I remained at home, for that hive showed much uneasiness. About 11 o'clock they commenced pouring out, both colonies coming out together,—two large swarms, and they went straight to a large oak in the timber, $\frac{1}{2}$ mile away. Well, it seemed too much to lose two swarms at once, so daylight, the next morning, found my brother and me cutting down the great oak. We felled the tree, and got them out without any trouble, and carried them home in triumph. They came out again the same day; I hived them again. They remained quiet until next day about 10 o'clock, when they commenced pouring out. I got water and sprinkled them thoroughly, but it was no use; they circled around a while, then alighted in or on the hive and swarm which I got on the 28th, being about two inches thick all over the hive. On looking around on the ground, I found the queen so wet she could not fly. I pinched her head; that settled her, and I supposed the others were all right. But not so; in about one hour, the cry was raised, "They are coming out again," and, sure enough, the bees in the hive they had alighted on and all the rest came off, leaving combs about six inches long. Such a cloud of bees in the air I never saw before or since. There were three large swarms together, and they did not attempt to alight, but struck a bee line to the northwest. I struck after them, determined to keep them company to their new home. I ran through timber, over fences, and through grain fields, for just two miles, until we crossed the Styx valley, when they rose up over the timber on the west side of the valley, and, for aught I know, they are going yet.

As they went in the direction of Medina, perhaps it is the colony which Novice captured, and which gave him such a *boost* in the bee business. But, be that as it may, I set my face homeward, a *warmer* if not a *wiser* man.

Now, had these fugitives a location picked out before leaving, or do they have an eye out for a future home, when gathering honey? Will Novice please stand up and explain? J. ELLIOTT.

Easton, Wayne Co., O., Aug. 2, 1879.

I believe the general decision is, friend E.,

that they sometimes have a location picked out, and sometimes they do not. Where a colony suddenly swarms because it hears the swarming note from some other in the apiary, and gets the swarming fever suddenly, I do not think they have any place selected. The mammoth swarm you mention probably went off in much the same way. On our way home from Sabbath school, on the 20th of July, we saw a swarm of bees right over the buggy, going directly in a line with the road. As long as they kept the road, I thought I could certainly keep up with them, and as they buzzed about the limbs of a tree by the road side, I began thinking what I should use to carry them home in. Well, they did not quite stop at the tree, and when they started on, they went so much faster, that I found it difficult to keep up, and finally, I found it out of the question; my horse *could not* keep their speed. Well, instead of taking the proverbial bee line, they soon turned on a sort of curve, and went off across the river, in quite a different direction from their original course; and, instead of going in the direction of any forests, they were taking a line for a neighboring apiary. Now, instead of having any definite plan in view, they were pushing ahead at random, and would very likely cluster somewhere, before going to any tree or place of abode. Do they not often start off in just this way?

CALIFORNIA AS A BEE-KEEPING STATE.

ARTICLE 2.

ABOUT the middle of June, we had a hot time of it. The thermometer went up to 110 in the shade, and the bees began to leave their hives and cluster on the trees in the vicinity of the apiary. We saw clusters from the size of a hen's egg up to a fair sized swarm. At first I began hiving, but found that they would not hive worth a cent; so I let them have their own way, and, in the cool of the evening, they would go back. Nearly every cluster contained a queen. I caged several and introduced them to queenless stocks, and the remainder I suppose found their way back to their respective hives. The heated term lasted 5 days, and every day they repeated the same process. Quite a quantity of comb melted down in spite of all the ventilation I could give. Only one full stock was entirely destroyed by melting, still I can see that, if the hives had been full of honey and brood at the time, we must have met with quite a loss in spite of all that could have been done, as the bottom boards were nearly all nailed fast to the hive.

Bees have a fashion of clustering with a virgin queen, perhaps on her wedding flight. They seem to gather from all parts of the apiary (mostly young bees and drones), until they form a decent sized swarm. At first, I used to hurry up and hive them; but I soon found that they did not amount to a row of pins, as they would all scatter away within 24 hours. In fact, bees cut up a great many didos in Cal., that we never saw in the east. E. GALLUP.

Scenega, Cal., July 24, 1879.

I have seen something of this same swarming out on account of excessive heat, in my green house experiments. During such a time, the loose bottom boards of the Simplicity hives prove a great convenience.

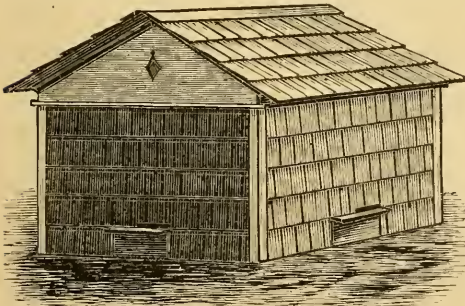
THE SHINGLE TENEMENT CHAFF HIVE.

WHEN friend D. C. Underhill intimates that the dwellers in "Michigan—my Michigan," take no pride in having things in good shape, he touches a tender spot in, at least, *one* heart. If there is anything that I take pride in, it is in the neat and tidy appearance of my apiary and its surroundings; I should not only have them neat and tidy but *ornamental*, "if I only had the money" to spare; but circumstances compel me to "count the pennies." Therefore, when the idea of making a tenement hive out of cheap shingles came to me, I felt truly thankful. Just think of it, friend U., that tenement hive has a capacity equal to four, two-story, chaff hives, and the materials for its construction cost me just *one dollar*; while, if you should see it, I do not think you would call it very bad looking either. One thing more; the interior being made of shingles, the chaff is brought right close up to the bees.

W. Z. HUTCHINSON.

Rogersville, Mich., Sept. 2, 1879.

Well now, my friends, we think the shingle hive is just handsome; and to prove it, I submit the picture of the one as it stands on our grounds, near the house apiary.



OUR OWN, SHINGLE, TENEMENT, CHAFF HIVE.

I think a small town of such hives would be really pretty. The only objection I find to it is, that the cover is so heavy to slide back, but when I get it hinged, like friend Hutchinson's, perhaps I shall like it better. I do not know how we can get the materials for a good chaff hive any cheaper, than 25c. each, but our carpenters find it a pretty big job to make one of the shingle, tenement, chaff hives.

DANGER OF ADULTERATION IN BEESWAX.

PRESUMING the following, copied from the *Manufacturer and Builder* published in New York, might be of interest to bee-keepers, give it in full.

AMERICAN MINERAL WAX.

For some time, there has been in the trade a mineral wax, from Austria, called "Osokerite." It is very much like beeswax, except the honey flavor, and is now largely used for the adulteration of beeswax, white as well as yellow, as this osokerite can also be obtained bleached, when it is as white as white beeswax, and is sold as such at a great profit, as it does not cost half as much. It appears that we have everything on this continent, and that, too, often better and in greater quantities than in other

countries. This is the case with this substance also. It is reported that an immense bed of this, or a very similar substance, has been discovered in southern Utah and Arizona, and we expect that this discovery may turn out to be as important as the petroleum discoveries in Pennsylvania. The substance is similar to the Roumanian mineral wax called "Zietris-kiste," as verified by Prof. Henry Wurtz, of Hoboken, N. J.

The beds here are said to cover many miles of surface, and reach to a depth of 20 feet; while, in Europe, it is found in comparatively small quantities. We ought to add that the difference between these substances and paraffine is that their melting point is higher, while they do not dissolve in ether, as paraffine does; therefore they are much better adapted for the adulteration of wax than paraffine is, which is very easily found out, paraffine being semi-transparent, while this substance is more opaque.

JAMES A. PRITCHARD.

St. Gabriel, Iberville Par., La., Sept. 8, 1879.

I have for some time feared the wax of commerce would be adulterated with this substance, which is really the same thing as the ceresin which we have had and tested; but my greatest ground for security has been in buying the wax in the usual cakes, of all colors, and, as much as possible, from the bee-keepers themselves, or from country merchants where it is brought in. I have feared that we should have these dirty cakes imitated, and, if we do, the readiest means of detection will be to test the wax by making some fdn. of it, and hanging it in the hive. If it makes good comb, without stretching, we pronounce it pure wax. As this substance answers every purpose of beeswax, except for fdn., it is quite a gain to our manufacturing industries, and it is this that has reduced the price of wax so materially, I suppose. So much has been sent in at 22c., that I have been compelled to reduce the price to 20c., until further notice.

A VISIT TO ONE OF THE ABC SCHOLARS WHO RAISES QUEENS INSTEAD OF HONEY.

DOES QUEEN REARING PAY?

IT does us good to go around and see other folks, and see how they do things; it knocks the corners off from conceits we are all liable to fall into. My neighbor H., came in yesterday, and asked me to go out with him and visit his apiary. Said apiary is about four miles from his home, and I have been talking to him almost all summer, about trying to make bees pay, and having them away from home in this manner. H., like some of the rest of us, has his own ideas, and his own ways of doing things. We climbed into the buggy, and, almost before we could get seated, off went "Patsy" like an arrow from a bow. While I held my hat on and stuck fast to the seat, I expostulated on the folly of having a horse that started before you told her to go; but he said that was just the way he wanted her to do, for it saved time. The buggy creaked and bounced in the air, as we went in and out of holes and bumped against bridges, and I told him

he would surely break it, but he declared, if there was any break to it, it would have been broken long ago; and so we went on, until we came down to the river. Golden rod was just in full bloom, and beautiful Italians, that might satisfy the most difficult customer I ever had as to markings, hovered in countless thousands among the blossoms. The asters which were just coming out, as well as the great masses of touch-me-nots along on the low land, were also humming with bees. Patsy went up to her accustomed post, and H. was out of the buggy in a twinkling, and began pulling some queen cages containing queen cells from under his vest, and out of various hiding places.

"What do you carry them there for?"

"To keep them warm; that is my 'lamp nursery.'"

Sure enough a queen had hatched, and he pulled the cover from a chaff hive, and laid it on the weeds; you see if the weeds had been cut down as I advised, he would have had to stoop to pick up the cover. Next came the chaff cushion which he keeps on in the summer too. The enameled sheet stuck to it, and both came out at once and were also deposited on some more weeds.

"Is that the way you open hives?"

"Yes; it 'saves time.'"

A nice, yellow, laying queen was found and put into a cage in a twinkling, and then, to my astonishment, his newly hatched queen was put right in her place.

"Is that the way you introduce virgin queens to full colonies like that?"

"Yes; it 'saves time.'"

"But do they not get stung?"

"No. I take a laying queen from *this* hive every week."

"Why, do you get such queens to lay in a week?"

"Well, not always when a week old, but the last one I put in was laying in just a week."

"You cannot do this with all your colonies?"

"No; but I remember those that will always take any queen, and keep them for that purpose."

"Do you always smoke them?"

"Well, usually, I think it best to have them all of the same scent as nearly as we can, but it may be they would receive just hatched queens without smoke. I smoke them when the queen is put in, and then I smoke them every time I pass, as long as I stay."

His queen cages are some old ones which I discarded years ago, made with wire cloth on both sides; but he finds them just the thing. Instead of a lamp nursery, he puts queen cells in these, and then lays them over the frames of a chaff hive, and puts on the cushion. I discarded this plan several years ago, but I did not have chaff hives then. With these, and strong colonies in them, such as H. has, I think they might prove a success, even during the cool nights we have had this fall.

"H., how does it come you have all such nice, regular combs, and of such even thickness?"

"Because I make them all nice, or throw

them away; I won't have combs in the apiary that are not nice and even."

Just notice; he had his hives set down all sorts of ways, and so covered up with weeds you could scarcely see them, but he would have no combs except good and perfect ones.

"I have a customer who wants 10 chaff hives with full colonies amply provisioned for winter; he says he wants some that I can stake my reputation on. What will you take for 10 of the best I can pick out here, in case he should send the money for them?"

"I would not take less than \$100. for 10 of my best stocks."

"Will you take \$100.?"

"No; I won't."

"H., how many colonies did you have in the spring?"

"Twenty-two."

"You sold me every queen in the lot in May, when I could not fill orders for tested queens, for \$2.00 each, did you not?"

"Yes; and you said it would spoil my apiary for this year, but you see it didn't."

"Do you know exactly how much I have paid you for queens this summer?"

"Yes, I have just counted it up. It is \$225., in round numbers."

"And you have now 60 colonies, all ready for winter, both in bees and stores."

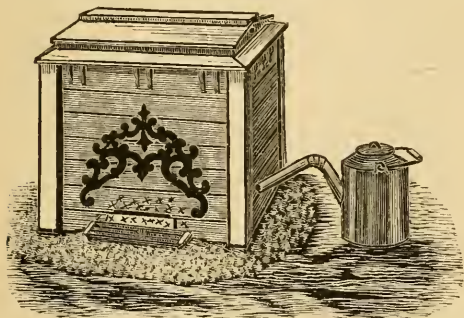
"Yes; is not that pretty well for one who commenced four years ago with just one colony?"

Yes; it is pretty well, in spite of the weeds, and his crooked apiary. The most of the queens he has sold me brought him only 60c. each, and it is no wonder they never get the wrong hive, for they will surely never forget the path through the weeds to the entrance. Two years ago, his wife scolded (just a little) because he paid so much money to me for an imported queen; but he says now, it is the best investment he ever made. Besides the chaff hive apiary, which no one ever touches except himself, the man has charge of three farns, and he says he does not know how he should ever get the money to pay his hired men, if it was not for the queen money. Patsy took us up town again, at the same break neck speed, not, however, before she had run around the fields with us, and showed us the beautiful beds of his Alsike clover, which was away ahead of any on the honey farm. It was a perfect carpet of green, and, although it was the 10th of Sept., in some spots, the blossoms were quite plenty, and covered with Italians.

FEEDING IN OCTOBER FOR WINTER.

THE fall flowers have commenced blooming, and as the bees have now something to do, even if it does not amount to more than their "board," I have thought best to omit the daily afternoon feedings of grape sugar. As open air feeders must be used only in the day time, and as any kind of day time feeding must divert the bees from their legitimate business of gathering honey from the fields, I am a little inclined to doubt their expediency, unless at a time when a drouth renders it absolutely necessary that they should be fed to keep up brood rearing. Even then, if the necessary amount can be given in the night time, I think it better. Put a Simplicity feeder right up against the alighting board, buried in the sand and cinders, and then fill it with thin syrup every night, just after all the bees have stopped flying, and they will then lose none of their time. After they get used

to it, they will be waiting at the door way, every night, even when the nights are quite cool. Although you can fill them conveniently with a coffee pot, a pail with cover and curved spout, as shown in the engraving below, will be found handier.



SIMPLICITY FEEDER ARRANGED FOR FEEDING CHAFF HIVE FOR WINTER.

The feeder should be set so low, that its upper edge is just even with the entrance block. Now, to make this work nicely, you must have the hive so full of bees that they are crowded out at the entrance a little, unless during the very coolest nights, and they should be thus strong to winter safely, any way. If you cannot crowd them out otherwise, put a division board on each side. A good colony will empty a pint Simplicity feeder, almost without fail; but if you should find it is not all taken out, and makes trouble by exciting robbing next morning, fill them no more than half full. If it should rain and fill your feeders with rain water, instead of taking the trouble to pour it out, just sprinkle in enough sugar to make the bees take it out. With the above arrangement, it is an easy matter to feed at the rate of 5 hives per minute.

WHAT TO FEED.

If you want the very best and safest thing for your bees for winter, give them a syrup made of straight A. coffee sugar. I believe all are agreed that this is just as good, or better, than honey. There is no need of boiling it at all; just stir it up with water as I have directed in the A B C. No matter about the proportions, only the sweeter you make it the less labor will they have to evaporate it in the hives.

Now the friends who are afraid of grape sugar would better stop right here, and read no farther. Those who, like myself, feel that grape sugar is just as safe as cane sugar aside from its inveterate habit of hardening in the cells in cool or cold weather can read on, for I have made

A VERY VALUABLE DISCOVERY.

The credit of it belongs to several individuals who gave me suggestions, some accidentally, and I will try to give all due credit. You may remember that I remarked, when we first began experiments with grape sugar, that Will had failed in all his attempts to combine the two sugars in making bee candy. Although they were solid and dry when separate, as soon as they were combined they were soft and sticky, and he could not make them hard. This is fact one.

When friend Bingham was here last winter, there was here at the same time a friend from Milan, O., Mr. S. Fish. Friend B. was, of course, very vehement in his denunciations of grape sugar and its use for confectary. Mr. Fish said he had used it for bees without any bad results, and in the way it was used in making candy, he thought it no harm at all. He said they simply added enough grape sugar, to destroy the tendency, in the cane sugar, to grain. For this purpose, they had formerly used vinegar; but he thought a nice article of grape sugar preferable, and so do I, in common with all our candy makers. Hence, notice that grape sugar destroys the graining property of cane sugar, when added to it in either large or small proportions. This is fact No. two.

On page 90, March No., Prof. Cook gives an account of a very valuable experiment, and it has doubtless demonstrated something he did not at the time expect, as well as the fact that I was mistaken. The bottles still stand in my study, and while three

of them have candied, including the honey, the bottle containing 2 parts of grape sugar and one of honey has not candied at all. This is fact No. three.

Well, my invention, deduced from the above, is that three lb. of grape sugar with one lb. of coffee sugar, dissolved in any quantity of water, will not candy at all. You may boil it down, if you choose, until it is solid, but no amount of stirring will make it grain, and you can make it so thick that the dish holding it may be turned upside down without spilling its contents, and it will still be as clear as glass. We have fed it to the bees for over a month, and have combs of it nicely scaled up, and still it is exactly like thick sealed honey. I have not a particle of fear in feeding it to my 300 colonies, for it is virtually honey, almost identical with that which the bees gather. It may be well to add that we are getting a better article of grape sugar now, from the Thurburns of N. Y., than that we used last year. They seem to have made important improvements in making a nice, pure article. Now, this isn't all either. It will probably be too cold for the out door feeding, as given above, when this No. reaches the most of you, and we must therefore feed candy of some kind.

BEE CANDY FOR 5C. PER LB.

Our friends who have found it so difficult to comprehend many of the queer things about grape sugar (such as that the solid sugar contains more water than the liquid glucose, &c.) will, probably, be interested in the following: Take a small quantity of coffee sugar, and three times as much grape sugar, both of which substances are dry and solid; pulverize them with a knife, and put them together, and they will form a wet semi-liquid. The water contained in the grape sugar exists in what is called a latent form, as the water does in plaster of Paris, when it hardens. Well, the coffee sugar has so strong an attraction for water, that it pulls it away, as it were, from the grape sugar, and with it becomes a thick syrup, or semi-fluid. This semi-fluid, composed of the two sugars, will be greedily taken by the bees; but it is too soft, and would run down and daub them. Now for my invention, which I confess to feeling a little proud of. You can easily melt grape sugar, on the stove, in a tin pan; and that, too, without the addition of a drop of water. You would suppose this melted sugar would become solid again, as soon as it becomes cold. Such is not the case however; it cannot again take up all this water, without having a little time in which to do it, say 24 or 48 hours. Now, listen.

HOW TO MAKE THE FIVE CENT CANDY.

Put 3 lb. of grape sugar in a tin on the stove, and melt it, adding no water. When melted (partly melted will do if you mash up the soft lumps), take it off, and let it stand until it begins to solidify. When it is partially solid, stir it up until it makes an even paste, say about like butter in the summer. Now stir into it, 1 lb. of coffee sugar, and $\frac{1}{2}$ lb. of wheat flour. All lumps in the sugar or flour must be mashed up or rolled. The pasty grape sugar is simply to hold the coffee sugar and flour, so that the bees can lick it up. Therefore, it is not to be dissolved, but only stirred in. You can now make it into candy bricks, sticks, or spread it into a frame to be hung in the hive. As soon as the bees lick it up, it is a liquid, and will never harden in the cells afterwards; in which respect, it is even superior to honey. If you wish to feed it rapidly, for winter stores, make a shallow tray, by nailing a very thin board back to a common frame; fill this with the soft candy, and after it hardens, which it will do over night if set where it is cold, lay the whole tray, candy side down, over the top of the frames, so as to have it cover the cluster. In this position, the moisture from the breath of the bees will soften the candy, and they will lick it up and deposit it in the combs very quickly. The $\frac{1}{2}$ lb. of flour will start brood rearing at once, and if it is a strong colony in a chaff hive, you can, with it, make them raise young bees and build up, even in winter. About the expense; 3 lb. of grape sugar will be 12c; 1 lb. straight A coffee sugar, 9c; $\frac{1}{2}$ lb. best wheat flour, 1 1-2c; total, 22 1-2c for 4 1-2 lb. of candy, or 5c per lb. I will sell you the material at the above prices, or I will furnish you the candy made up, ready to feed, for 2c per lb. extra. I shall keep 4 1-2 lb. trays on hand, made just right to cover 1-2 of the brood nest in a chaff hive. Price of each tray, 35c. Three or 4 such trays should, I think, carry a strong colony through the winter. Price of empty trays, 5c.

Humbugs & Swindles,

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

I WANT to tell you about a little transaction between myself and a Mrs. Lizzie E. Cotton, of West Gorham, Me., who sends her circulars all round the country, advertising *her system and hive* as something new and wonderful. I have not time or space on this card to tell you very particularly, but her circular says, "Send me six dollars, &c., and I will forward you one sample hive, one sample honey box, one feeder, receipt for feed, with complete printed directions for managing bees on my plan." She sent a special circular saying she would send the same, up to July 1st for \$4.00. I sent the money and received in return, an imperfect model of a bee hive. I call it a regular swindle, and have told her so. Her description of her hive is, 2 feet square, 1 foot deep, with 30 glass boxes—boxes top and bottom. The feeder is made of tin, and the bees have to climb down the perpendicular sides to get the food. Her directions contain nothing more than what all experienced bee-keepers have known for years. Her hive is not patented, for the reason, in my opinion, that every thing about it that is patentable is already patented, and still she says the "patent bee hive fraternity" are slandering her, and she is determined to drive the patent bee hive men all out, &c. I presume her name is familiar to you. I have told her, if the patent bee hive men have called her a "fraud," I was convinced they were right.

Bartonsville, Vt., Aug. 20, '79. A. P. FLETCHER.

The Mitchell fellows have been through here. A man of my acquaintance was played on, to the tune of \$10., for a smoker and a farm right to make his hives. They never have come near me yet, for they can find out very easily that peddlers of all kinds have to keep out of my reach.

St. Patricks, Mo., July 1, '79. E. F. McDONNELL.

I have been intending to write to you a long time. Last spring, one N. C. Mitchell, of Sandusky, Ohio, sent some circulars into this county, representing that he had a queen nursery on Kelley's island. Well, the result was, several of my bee friends clubbed together and sent him \$28.00 for 8 queens; and, strange as it may seem to you, at least, one of them was one of your subscribers. They have received no queens yet. Mitchell keeps making excuses, and promising to send them soon. Do you know anything about Mitchell? Is he reliable? Do you think he will send the queens? I ask these questions for the benefit of my friends. Now, don't be too hard on Mitchell; he says his wife has been sick this summer, so that he could not attend to his bees.

M. E. PARKER.

Somerset, Ky., Sept. 8th, 1879.

Mitchell has been doing this same thing for years past, and has told the same sort of excuses. Many of his letters have been sent me. Should I let him go on advertising thus, without proclaiming him? Is there any excuse for his advertising as he does year after year? What do you think about it, friend P.?

Should not the way of the transgressor prove a hard one?

Mrs. Cotton has finally sent some of her customers what she calls a sample hive. Instead of being a sample, it is a rough model, too small to be of any practical use, and these customers are but little better off than those to whom she sends nothing. Her "directions" are contained on a single leaf,

printed on one side. Her "celebrated" secret for bee feed is as follows:

MRS. COTTON'S RECEIPT FOR BEE FEED.

To 8 lb. coffee crushed sugar, add 2 quarts of soft water, and the whites of 2 eggs, bring this to the boiling point, over a slow fire, and skim carefully.

The rest of the leaf, which she claims will enable any one to secure \$50. per year from every colony, comprises nothing that is not well known.

Mitchell advertises an extractor (at a very low price), in about the same way; after you get the extractor, you must pay more for gearing, wire cloth, honey gate, etc. The reports of the swindles of both parties are coming in almost daily.

DOOLITTLE'S REPORT FOR 1879.

MR. EDITOR:—Thinking the readers of GLEANINGS would, perhaps, like to hear how we are making bee keeping pay, we send you our report for 1879. We shared the fate of many others last winter and spring, in losing quite a number of stocks of bees, and many more were so weak as to compel us to unite them to give us any chance of success. This, with the sale of a few stocks which we promised during the winter, left us only 60 to commence the season with, which opened rather later than usual. Bees did not obtain pollen plentifully till about May 1st, while there was scarcely any honey gathered until the first of June. At this time, apple yielded quite plentifully, sufficient to last the bees over the period of scarcity we always have between apple bloom and white clover. White clover opened June 15th, and only yielded honey enough to keep the bees rearing brood plentifully while it was in blossom. Basswood opened about July 12th, and yielded a steady flow of honey (although the yield at no time was great) till Aug. 1st. Buckwheat yielded no more than the bees consumed; and so, take it altogether, the season has been an unfavorable one for surplus honey. However, we have obtained in box honey, 2,909 lb., and 572 lb. of extracted honey, making 3,481 lb. in all, or 58 lb. per stock, as an average yield. This is the lightest yield we have had during 7 years, with the exception of 1876, when our average yield per colony was but 50 lb. We contracted all our honey this season, early in Aug., at 15c for box honey and 10c for extracted. We shall go into winter quarters with 100 colonies.

Perhaps, it may be interesting to your readers to know how our report stands for the past 7 years; for it is only by a number of years' experience in any business, that a true result as regards the profit or loss can be obtained. Our average yield for each stock in the spring, in 1873, was 80 lb.; in 1874, a fraction of a pound less than 100 lb.; in 1875, a little over 106 lb.; in 1876, it was 50 lb.; in 1877, a little less than 167 lbs.; in 1878, just 71 lb.; and in 1879, the present season, 58 lb.; making an average yield, for the past 7 years, of a little over 90 lb. per stock, seven-twelfths of which was box honey. By looking over our diary, we ascertain that this honey has been sold at an average price of 21½c per lb., the highest price (28½c) being obtained in 1874, and the lowest (10½c) in 1878.

From past experience, we believe a thorough, practical man can do all the work required to be done with 100 stocks of bees, and, according to the above figures, he would obtain, for an average term

of years, 9000 lb. of honey annually, which, at 21½¢ per lb., would bring him in a yearly income of \$1912.50. Although the average yield per colony for the next 7 years to come may be increased, yet the price during that time is likely to be much lower; as the high prices caused by the war are passed, and, unless we have some unforeseen event, to raise the price of honey, it will probably never bring 28¢ per lb. again. Still, with a much lower price for honey than that averaged for the last 7 years, bee keeping ranks favorably with almost any pursuit.

Borodino, N. Y.

G. M. DOOLITTLE.

OUR OWN APIARY AND HONEY FARM.

AUG. 29th.—I wrote to friend Simpson, and asked him how he raised the plants of the Simpson honey plant, which he sent me in May. Here is his reply:

Part of the seed was sowed in the fall, and part in the spring. That sowed in the spring grew the best on account of the ground's being mellow. About ten per cent of the seed grows. The plant will not bloom to amount to anything, the first year.

The honey crop is a failure since July 15th.

JAS. A. SIMPSON.

Alexis, Ill., Aug. 26th, 1879.

Well, if they do not bloom to amount to anything the first season, I would really like to know what we may expect next year. If only ten per cent of the seed grows, I think we would better put it in pretty thickly.

DO NOT INTRODUCE THE ACCOMPANYING BEES, WHEN YOU INTRODUCE A QUEEN.

Sept. 9th.—O dear, O dear! I have just lost one of our very nicest imported queens. I killed her by one of my own blunders. Did you ever do such a thing, my friend, and do you know exactly how a body feels?

A strong colony had been deprived of all its queen cells on the 10th day, on purpose to make room for her, and I was going to show a visitor how easy a thing it is to just let such valuable "insex" right out. I let her right out, and the bees gathered round her, fed her, and the introduction was a success beyond doubt. As I was about to close the hive, I noticed the bees left in the cage; and, as there were quite a number of them, I thought it would be a humane act to introduce them, too, so I shook them out on the top of the frames. Robbers had been buzzing about, and I might have known these would be recognized as intruders. But, even when they began to tumble them out at the entrance doubled up in that well known crippled state that denotes being stung, I did not think of their serving the queen in the same way. However, when I saw that they were bent on killing every worker I had let out, it occurred to me, that they might possibly include her in the royal edict, as they were going to do with queen Esther of old, and I hastened to lift out the frame she was on. There she was on the bottom board, stung, probably the last one to die. If this experience will help you to avoid similar mishaps, I will try not to mourn her loss any more.

MORAL.—Put the accompanying worker bees in some other hive.

10th.—I have come to this conclusion in regard to a honey farm: If you want honey, you must have good, rich soil, just as surely

as you must have good, rich soil for your peaches, strawberries, or any thing else, if you are going to have nice fruit, and plenty of it. To this end, I have been having an attack of not only bees on the brain, but stable manure, underdraining tile, deep plowing, superphosphate, irrigation, &c., and it has borne fruit in the shape of a good deal of hard work on our 18 acre farm. It is our dull season now, and I have been setting the boys at work out of doors, to keep them busy, and I am well convinced that I cannot afford to raise spindling crops, and hire hands to gather them, on land that cost me \$200. per acre, as mine did. I have calculated to have the seeds pay the expense of cultivation, and thus leave the honey clear profit, but I have lost the honey, and seeds too, from quite a part of my ground, by having patches here and there, on upland as well as low land, where the water has stood during wet spells; and this, too, on some of the very richest ground I have. Perhaps you farmers can stand this sort of thing, but I don't believe I can, any more than I could stand box bee hives, as so many of the farmers do. The worst places have been already underdrained, and I helped to do it, too; and, to see how it works, I have planted seven top turnips right where used to be the bottoms of mud holes, and I tell you it just makes me happy to see them grow. Won't we have some banks of yellow blossoms next spring? This turnip is a wonderful thing to grow late in the fall, and, from my experience, I am inclined to think it is better to sow it in Oct. than in any other month in the year, for, when sown so late, it entirely escapes the pest of the whole turnip family, the little black flea. Boys, if any of you have a mud hole, or a swamp, on your land, just try it, and see what a garden you can make of it.

At the south end of our land, down in the woods by the pond, the creek wanders here and there, until it spoils about an acre of ground. Well, we have just cut a straight channel right across the ground, and into this channel we carry our underdraining tile. Along the sides we have planted peach trees, raspberries, and strawberries, on the plan given in *Ten Acres Enough*. As there is always water in the channel, we can get up a shower, with the fountain pump, anywhere along the banks, and reaching for some distance back, at any time when the clouds are backward, and with very little trouble. With this patch of ground, which has a nice southern slope, protected by the woods on nearly all sides, I propose to see what can be done with underdraining, deep plowing, manuring, and irrigation, toward making honey plants "climb." Right by my type writer, is a paper of seeds of the beet used for making sugar. A few of these are to be planted to-day, and, if I can make them grow large enough yet this fall, in my garden down by the pond, to see if the bees will carry away beet juice as they do grape sugar,—well, we shall see; yes, we shall see.

OUT DOOR FEEDING WITH A BARREL FEEDER.

To keep brood rearing going on briskly, we are still feeding grape sugar every afternoon, and, as it takes about 50 lb. a day, to

barely keep up with the daily consumption in so many colonies. It is quite a little task to break the sugar out of the barrel and put it in jars, even though we have replaced the glass jars with stone ones holding two and three gallons; and so I have devised a plan of feeding from a whole barrel, leaving nothing more to be done than to pour in water when you want to feed, never taking the sugar out of the barrel at all, or even touching it with your fingers.

Sept. 22d.—The feeder made of a whole barrel of grape sugar worked very well, until the weather became so cool that many bees were lost by working so late that they got chilled, and dropped along on the grass. The out door feeding works beautifully when we have warm weather; but, at the approach of cool frosty nights, I think it better to feed each hive at night, either in the hive or at the entrance. See *Feeding in October for Winter*, on another column.

TIME TO SOW BUCKWHEAT.

A fine crop of buckwheat can be raised from seed sown the first of August, so far as honey is concerned; and, should frost hold off as late as the first of Oct., it would give, at least, a fair crop of seed. I believe buckwheat sowed the first of Aug. has given a better yield of honey, than that sowed a month earlier. As a rule, we may say the bees will begin to work on it, 30 days after sowing; it will be in its prime for honey, in about 45 days; and some of the seed will be ripe in about 60 days; the field, as a rule, will be ready for harvest in about 75 to 90 days. From this you can judge when to sow it in all localities. It grows just about as well, during cool weather, and it will keep right along during very cool nights, providing we have no heavy frosts.

RAPE FOR FALL PASTURAGE.

As rape will stand the frost almost as well as its cousin, the turnip, I think it might be sown for bees as late as a month before frost; some sowed in Sept. has been growing and blossoming beautifully, and is covered now with bees, and by these late sowings we escape entirely the great pest, the little black flea. Whether it will do to sow it so late that it will have to stand over and bloom in the spring, like the seven top turnip, is a matter I am just about testing.

THE SEVEN TOP TURNIP.

When this reaches you, it will be just the best time to sow the seven top turnip; and, as it will have blossomed and be out of the way, a little after apple blossoms, you can clear it off, and use the land just as if it had not been on it. Therefore, if you have any ground, you can just as well have a good field of it as not. If you wish the seed to ripen, you will have to spare the ground a little later. It should be borne in mind that this turnip bears tops only and not roots. The leaves are used for greens, almost any time in the winter. The rape, turnip, and buckwheat, I am satisfied, will pay for the honey alone.

ALSIKE CLOVER SOWN IN THE FALL.

My Alsike and white Dutch clover fields

do not suit me. The seed was sown with oats in the spring. My friend H. says they sometimes sow it with winter wheat; but I want a field of clover alone, and I want "tall" clover too. About the 10th of Sept., I sowed a little piece down on that new hillside garden by the pond. I put on plenty of seed, and plenty of super-phosphate, for I want the ground to look green, and in a week the little plants were up very thick. I have been visiting them and looking at them on an average of about twice a day, ever since they came up, and I tell you it is fun to see them put out their second leaves. I wanted to sow it in rows and cultivate it, but they laughed at my idea of cultivating clover. I believe now, the laugh will come on my side when I get around to it.

Something has given me a wonderful mania for seeing things grow this fall, and the sight of a nice, straight row of turnips with their broad, green leaves, bright and perfect, during these cool, invigorating days, makes me about as happy as anything I know of; I mean, when I have cultivated and hoed them, and when there is not a weed visible, or a leaf that is not bright, green, and growing.

I want my Alsike, white Dutch, mellilot, and, in short, every thing on the honey farm growing just that way, and it seems to me, they should all be in rows, so that we could run the cultivator straight through them all.

FEEDING.

EDITOR OF GLEANINGS:—I have met at least three parties in California, who have tested what I hold true in regard to bee keeping, in this state as well as all others; that is, all stocks should be kept strong, and have stores to fall back on in a scarce time, or they must be fed. Even in the best of seasons, there are times when bees can gather nothing. Now, if we feed a little every evening, at such times, just to keep the queen breeding, we shall always have bees of the right age to gather honey whenever it does come. But, if we allow the queen to stop breeding at such times, the stock will soon run down, and become worthless. Sometimes even 25c worth of sugar, fed at the right time, will make a profitable stock, and the want of that 25c would allow it to become an unprofitable one. I have always held that feeding should be done in the summer, and bees would then store enough to winter on. Stocks that were strong in numbers last spring, and had an abundance of stores in the hive, are now strong and have abundance; consequently they are self-supporting, even in a bad season. If they have abundance of stores in the hive to fall back on, they need no stimulation. Then, whenever there comes a few days of honey weather, they are ready to take advantage of it, and they fill up at once. But, suppose we allow a colony to stop breeding; although they may seem to be quite strong in numbers it will take all their force to raise brood when the honey weather does come, and the consequence is nothing is stored, and they will keep on doing so throughout the season, and be worthless in the fall, or have to be fed a large quantity, while a small quantity, fed just at the right time, would have enabled them to store their own winter supply. You know Gallup's hobby has always been, strong stocks and abundant supplies for profit. Bees can be kept self-supporting even in California.

E. GALLUP.

Secega, Cal., Aug. 27, 1879.

INSTRUCTION IN BEE CULTURE IN THE SHAPE OF PRACTICAL WORK IN THE APIARY.

I HAVE received GLEANINGS for July and Aug., which you have kindly forwarded me. It is a glorious publication, and I sincerely hope repays you for the labor that must be expended upon it. I enclose \$1.00 in payment of my subscription for 1879, and should feel obliged by your sending me the back numbers.

Although books and magazines are excellent aids to a knowledge of bee keeping, yet I think a few months, or even weeks, practical work on an extensive bee farm would be very advantageous.

Perhaps you would kindly answer, in next month's GLEANINGS, the following question:

Could you inform me if there are any large bee farms in the Northern States, where a person could be boarded and instructed in the business, on payment of a stated sum, or so much per month? A quiet, well disciplined establishment desirable.

Halifax, N. S., Aug. 9, 1879.

BEGINNER.

You have struck on a thought, my friend, that has, for some time, been forcing itself upon me. Pictures and drawings help descriptions and directions on paper, but still there are many who always want to see a thing with their own eyes, and see how it is done. Our minister was down here a few days ago, and, after watching the operation of making artificial swarms for, perhaps, a half hour, he remarked as he started for his home and his own bees, that he had learned more in regard to artificial swarming, by seeing the boys start queen cells, cut them out, get frames of brood, &c., in the half hour, than he could by studying the A B C book a whole week. He had got erroneous impressions, he said, by study, which were corrected and righted at a glance, when he saw one perfectly familiar, go through with the various operations. Now, while there is a great truth here, there is also another side to the question. We cannot dispense with the books, and while there are those who have had the study and not enough of the actual practice, like our friend just quoted, there is a class who think they can learn it all by sight, and do not need books. This class make as many, or more mistakes, than those who take the other extreme.

Now to business: We have a great many visitors, in fact, we have them almost daily, and sometimes, we have a small crowd of them. I am glad to see them, and it affords me great pleasure to know that their visits are pleasant and profitable. Sometimes they stay with us several days, and we have had one, a lady from Texas, who was anxious to learn bee culture, who stayed several weeks. We gave her a small apiary of seven hives, and she went through with the whole operation of rearing queens for these hives, and sending them off to market. How about the expense of such instruction? Well, she did work enough in the apiary to pay for the tuition she received, in the shape of showing and answering questions. We paid her nothing for her work, and she paid us nothing for what she learned, and she was at liberty to leave at any time when she thought herself sufficiently proficient. She obtained board near our grounds, in a

private family, for \$3.00 per week. As she was thinking of building a house apiary, she handled the bees in ours for several days, that she might decide how she liked it, compared with the out door hives. Now when I say that as many of you may come here as choose, under the same conditions, I think I would better say, to prevent disappointment, that we shall expect all who come to study up the subject from the books. If you come here and ask me how we raise queens from worker eggs, and questions of like import, I shall probably hand you the A B C book for an answer.

What shall I do if a lot of these raw hands make more trouble and do more damage than they are worth? Why, I suppose, I should have to tell them so, and have them do better. Practical experience of many years is a good thing, but I have learned that there is an element in humanity which is of even more value than this; it is the honest enthusiasm and love of learning, coupled with energetic effort to learn, at all hazards, that we often see in our schools and colleges. Such a boy or girl, with half a chance, and almost without showing, will often outstrip veterans in a few years. I will tell you, by a little story, what I mean.

An old market gardener saw, in one of the groceries, some beautiful heads of lettuce, quite a little time before he had any in his own hot beds. Said he to the proprietor,

"That is nice! That is beautiful! Of course, you got that from one of the cities?"

"No; it was raised in our own town."

"In our own town? No!"

"Yes; and by a little boy."

"Why, is it possible? Can I see that boy?"

He did see him, and learned that the boy had taken it up himself, and had made his hot bed from what he learned from the agricultural papers too. Now, although I have more than 40 hands out of employment, and waiting for places, I would give that boy good work, and good pay to-day, if I could get him. Give me a boy or girl that has a love for his work—one whose heart and soul is in it. He wants to know all that any body knows about it and more too; and there is always enough for such a boy or girl to do. All such, I am glad to meet, and glad to help. Nay, further: *God* is always ready and willing to help us. My friends, when you are out of work, can you blame me for thinking it is because you are remiss in just the way I have tried to illustrate?

AN APOLOGY FOR UNCHARITABLE THOUGHTS.

I AM thinking I owe you an apology for the way I have been talk—thinking of you for sometime past. O yes, it is all very well for Mr. Root to say "Do everything *exactly* right; not *nearly* right, but *just* right;" but then, when your work comes to hand, we find you do not do as you advise.

I was very much pleased with the appearance of the hives I ordered from you, until I began to put them together, and then I found I needed your iron frames to hold them up while I nailed, but with some difficulty, I got them put up. I never thought of using a smoothing plane, and they all came together well enough, excepting one cover, which was

about $\frac{1}{4}$ of an inch too narrow. In that I put a "dutehman" to fill up, and my hives were complete. I had them painted ready for the bees, but when I came to think of it, it was necessary to fill them with frames. These I had not ordered, so I got out the A B C book to see how they were made. There is no person I know of about here who uses frames. I had rigged up a circular saw on an old turning lathe; so at it I went, and soon had my stuff out for the frames. I had sent to you for a sample frame, and now I must make them *just* like the sample. I measured and measured to be *exactly* right; I laid your frame on mine, and found I was *just* right; and now thought I to myself, I am ready for the "blessed bees." But lo and behold! when I came to put my frames in my hives, they all rested on the bottom.

I won't tell you what I said, but there was some pretty tall thinking about that time. I turned to A B C again; I got your dimensions, measured your hives, and found they agreed; then I jumped at conclusions and said, either your hives or your book was wrong, for they would not agree. So I went to work and cut $\frac{3}{4}$ of an inch off all those frames, and while I was doing that, I hardly think my thoughts would square with teachings in *Our Homes*. I am glad, Mr. Root, you were not present just then, for I might have said something that would not have been pleasant to think of afterwards. Now to think you were not to blame at all! Your hives were just right, and my frames were just right if I had not cut them down, and, like the nigger at camp meeting I have been "makin' all dis fuss for nothing." In looking through a drawer, the other day, I came across some tin strips. At first, I did not know what they were, but I remembered they came with the hives. I turned to A B C again, and found they were rabbets for the frames to rest on. I wilted, I had no more to say; but thought I ought to apologize for the way I had been thinking of you.

Bucna Vista, Pa., Aug. 7, '79. W. M. A. BELL.

AN A B C SCHOLAR IN MAINE.

I WILL now take time to tell you how we are getting along down here in the wilds of Maine. The season, thus far, has been very wet and cool. I think it better for bees than hot, dry weather. Honey is coming in very fast this week, from lindens. I never saw bees work faster than they have for three days past. The golden rod is just commencing to blossom. We shall have millions of it soon. During the month of Aug., the country will be completely ablaze with it.

I started the season with 13 colonies of bees, mostly weak ones. I have taken off 300 lb. of honey, part box and part extracted, and doubled my stock by natural swarming. I think they will do better the remainder of the season than they have thus far. I have fed grape sugar during the dull spell, and think it the best food for out door feeding. It has been a great help to my bees.

I have the best roofs for bee hives that you ever saw. They are made of slate. I have used them two seasons, and they prove to be the boss cover. No matter how hard it rains, my hives are dry. I could hardly do without them. One piece of slate makes one side. I think my bees feel the heat much less under them than when they are covered with boards, and they always look neat and new.

I think I have found a case to pack sections in. I have been bothered much about doing up my box

honey for customers. If I do up the sections in paper, they are sure to jam their fingers into the comb or smash it in some way. My customers generally want from four to twelve sections. I was doing up four sections, the other day, and happened to find a box $4\frac{1}{4}$ in. wide, by 8 long. The box was one inch deep, and the cover also. I set four boxes in the bottom, and put glass on the outside boxes, then put the cover on and wrapped them with cord, leaving it loose for the fingers to go in. It looks nice, and I think it just what I want.

Aug. 9th.—Twelve days later.—Since writing the above, I have tried those little section cases, and find they work to a charm. I went up to Moosehead Lake with 310 lb. of honey, and got \$77.50. I was just an hour in selling my load. I would like to have you try those box cases. I think, three sizes would be necessary,—to hold 4, 8, and 12 sections. I would like to buy them of you, if you could make them. I think rubber would hold them together nicely. Since July 23th, I have taken off 407 lb. of honey and shall take off 200 lb. more next week. I have one colony, that has made 140 lb. box, and 30 lb. extracted honey, and thrown out two swarms.

There, I thought I would not say anything about the new smoker you sent me, but I cannot keep still. I have always used a mouth smoker, which I think better than any bellows smoker except the cold blast. I will tell you just what I would do, if I had to part with that or my best swarm; the swarm would go, by all means. W. H. GREEN.

Parkman, Maine.

REPORT FROM AN APIARY RUN BY HIRED LABOR.

AS but few apiaries are run by hired labor, I thought perhaps you might like the report of one managed mainly for extracted honey this season. The yield is only moderate; the linn season was short and slow. We have 27 bbls., (about 10,000 lbs.) clover and linn honey. We use oak barrels, made for the purpose, which do not leak and are not waxed.

Our May count of bees was 65 colonies. We now have 115 in fine condition for buckwheat. We use, in our apiary, 250 regular hives, full of regular combs, and about 75 hives containing no combs, but, in all other respects, like the others. The empty hives are set on the bottom boards of each strong colony, and the hive or hives containing the bees set over or on them. The hives of empty combs are added at the top from time to time, as the bees and season require.

All the work is done by a hired man. Nearly all the honey is capped before it is considered suitable to extract, or is extracted. The uncapping is done with a Bingham & Hetherington uncapping knife, and the bees are controlled with two large Bingham smokers, one of which is usually in use.

HONEY VINEGAR.

In some recent number of GLEANINGS, inquiry was made as to the amount of honey needed for vinegar. Our cappings are drained 24 hours, and then put into a whiskey barrel (having one head) nearly full of spring water, and allowed to stay a few hours to rinse. Then the cappings are squeezed into balls like snowballs, and laid away. This process is continued till the water used to rinse the caps will float an egg. It is then put into a barrel with but one head, and covered with mosquito netting and loose boards. In about one year, it is vinegar in the loftiest sense of that word, better for all purposes than any cider vinegar ever made.

T. F. BINGHAM.

Otsego, Mich., Aug. 9th, 1879.

BEE BOTANY AND ENTOMOLOGY.

ANOTHER DESTROYER OF HONEY COMB.

ALMOST every bee keeper knows the wax worm, or honey-comb caterpillar, larva of the *Galleria cereana*; but few have seen the one under consideration, so I introduce to the bee-keeping public, *Dermestes lardarius*, Linn., or the museum pest. I have been fighting this pest for years, and so am well prepared to describe him to those unacquainted with his person and character. He has been so much more of a pest in our several college cabinets of stuffed birds, fish, mammals, and insects, under my care, than at the bee-house where I have often seen his work, that I have never thought to acquaint my bee-keeping friends with his *personnel* and habits, and am only led to do so now from the following letter.

Prof. A. J. Cook:—I send you, this morning, a small box of worms and bugs which I find are damaging my honey combs very materially, when not exposed to the fumes of sulphur. They do not spin a web as do the moth worms, but seem to work in the cells and consume the wax septum. The worms are of all sizes, and seem, eventually, to change into the small bug enclosed. I have shown them to several bee-keepers, and they fail to give any information in regard to them. I put up a package for you a couple of weeks ago, but they cut through the cork, and I could not find any bugs until to-day, though there were plenty of worms. Please inform me, at your earliest convenience, through the journals if you prefer, if they are commonly known to bee-keepers, as injurious to honey combs.

Toledo, O., July 28, '79. JOHN Y. DETWILER.

This is a beetle, *Dermestes lardarius*. The generic name, *Dermestes*, comes from the Greek, and means skin-devourer. Every zoological collector knows that this name is exceedingly appropriate. The specific name refers to the fact that the larvae of these beetles are very free in the larder, and not slow to show their appreciation of good lard and bacon. This beetle, like our bee-moth, is an imported insect. This makes the case all the worse, as our most formidable insect enemies are the imported ones.

This beetle (Fig. 1, magnified $\frac{1}{2}$) is black, with a buff border at the base of the wing covers, on each side of which are three dots. This yellowish color is owing to short hairs of that color. There are a few yellowish hairs on the under side of the thorax. The free ends of the antennae are enlarged, and brownish. The remainder of the antennae—all but the last three joints—are black. Fig. 1, as are also the legs; though on these latter, as on other parts of the body, there may be found a few scattering yellow hairs.

These beetles, though they themselves eat little if anything at all, seem to know that their baby grubs will have good appetites, and so lay their eggs upon such substances as will serve the prospective larvae for nourishment. Thus the eggs are laid upon almost any animal substance, especially decaying or dried animal tissues. Wax is an animal secretion, and so it is not strange that comb is also subject to attack.

The newly hatched larvae are quite light colored, but they soon become plainly ringed with brown and white. These colors keep deepening with each moult, or change of the skin. After the last moult (Fig. 2, magnified $\frac{3}{4}$), the colors are very dark, and light brown. There are thirteen rings or segments of the body back of the head. The dark brown occupies the centre of each segment, while the space between the rings is lighter. To the first three rings, are attached the usual three pair of jointed legs; while, terminating the last ring, are two small anal prop legs, a not infrequent peculiarity of grubs or beetle larvae. Each segment is decked with a ring of quite long, brownish hairs, while a more dense row of stiff, short hairs extends back from each of the segments. These, with the two short, prominent spines on the next to the last segment, probably serve to hold the grubs, as they push their way through the tunnels which their own eating has formed. The head is not only armed with strong jaws, but there are also antennae, which are rarely found in larval insects, though always present in the mature forms. The full grown larva are one half inch long. These are



what the editor of the "Exchange," Aug. No., page 123, calls "little hairy striped moths." He should have said grubs.

I have found these pests quite useful in one respect, that of preparing skeletons of our smaller animals. I now have, bleaching in the sun, the remains of a fine massasauga, all of which, except the bones and rattles, has gone to nourish the *Dermestes*. The ligaments still hold the bones together, and the whole is really very beautiful. I also have skeletons of a bat, a mole, &c., prepared in the same way.

The above suggests a remedy. Place some dried flesh or insects about the bee house. These will attract the beetles, when the latter may be crushed. In large boxes, the combs may be quickly rid of these destroyers by fumigation with sulphur, just as we would destroy the moth caterpillars.

Another museum pest, *Anthrenus varius*, belongs to the same family, *Dermestidae*—and, though much smaller, is quite as worthy to be dreaded. The famous carpet beetle is of the same genus. It is *Anthrenus scrophulariae* and is doing no little mischief in New York and east.

A. J. Cook.

INSECTS ON THE BASSWOOD BLOOM.

Inclosed, find those little insects that visited our basswood bloom, last year and this. This season, bloom was in abundance, commencing the 4th of July and lasting 22 days. The first 3 days, the bees worked well. Then began to appear those little creatures, in great numbers, and immediately there was plainly seen a check to the ambition of the bees, for they became touchy and cross, and I, too, somewhat, for they stung my visitors, and much disappointed me, as I have every advantage of a long yield, the bloom being late on the high hills. Perhaps it is because of those insects that basswood can not be depended upon. Who will tell?

Mombacuss, N. Y., Aug. 5, '79. W. MOREHOUSE.

The little beetle sent by Mr. Morehouse is a species of *Photinus*. Most of these beetles are phosphorescent. Our fire-beetle *alias* fire-fly, *alias* lightning-bug, belongs to the genus *Photinus*. Nearly all of the beetles of this family, *Lampyridae*, feed on the pollen of flowers, where they will be found during the day. The beetles were after the pollen, the bees in quest of the nectar. The drouth dried up the nectar fountains, but did not stop the growth and development of pollen. So the bees, like Othello, found their occupation gone, and were cross about it. The beetles, on the other hand, continued to find pollen, and, presumably, were still joyous. Our friend, then, like many others of us, owes his ill fortune to drouth, not to the little beetles which meant and did him no harm.

A. J. Cook.

Agricultural College, Lansing, Mich., Aug. 11, '79.

SYMPHORICARPUS.

A. I. Root.—Enclosed find specimens of a shrub which grows in profusion here, in clearings, pastures, and waste places, where the land remains uncultivated for some time. It is very hardy, and grows from 2 to 4 ft. high, according to the soil. It is known as the buck berry bush; I suppose, from the fact that deer and sheep subsist largely upon the berries, which it yields in large quantities, and which hang on till late in spring. They are of a bright red color, of the size of grains of pop corn. Every twig is clustered with the crimson fruit, its entire length, and presents a very ornamental appearance, at a season when nature generally wears a sadder aspect. By the casual observer, the flowers, which are very small and unattractive, would be passed unnoticed, but for the swarm of bees which cover them from sunrise till nearly dark, making merry music all day long. To me, there is no sweeter sound than the song of bees as they joyously flit from flower to flower, or wing their way to and from the hive. These homely little blossoms furnish but little pollen; it must be nectar for which the bees continually visit them. Right here is an example of the beautiful compensating laws of nature. A humble bloom, by the sweets which its hidden nectaries secrete, attracts a myriad of gaily colored insects, and bees of every tribe, from the great bumble bee to tiny, green and golden insects, the golden-banded Italians appearing like so many pendant jewels as they swing upon the flowers, and make vocal the air with chimes of insect melody; and thus a grotto of loveliness is disclosed to view, which otherwise might appear tame and dull.

The shrub has furnished a constant succession of

bloom for over 6 weeks, and will bloom for several weeks yet. The amount of honey in each flower is small, but, as in the white clover, the supply is constant and the quality good. Here, uninvented and without coaxing, it has taken its stand with our best honey producing plants. The only cultivation I give it is, to clear away other shrubs and timber; it takes possession, and holds it ever after. I believe it will pay for cultivation. I have never heard it mentioned as a honey plant, or seen it outside of this state. If you do not have it in Ohio, I will send you a few plants, by mail, this autumn, for your honey garden, or more by express, if you say so. The plant is very ornamental in winter, on account of its profusion of crimson berries. I prize it for its honey, and the forage it furnishes in winter for stock. Plants can be produced from seed, but plants that will bloom the first season are better. W. C. SMITH.

Warsaw, Mo., Aug. 9, 1879.

Answer by Prof. W. J. Beal of Michigan Agricultural College.

This is *Symphoricarpos vulgaris* (Indian currant, or coral-berry). I received it, a few days ago, from another source in the southwest. The sender said it was a fine bee plant. It is a plant of the honeysuckle family.

Editor of Gleanings:—It appears to this correspondent that you are making a big noise about that "Simpson Honey Plant," but I tell you, and you can tell "all the world and"—the people of Australia, that if you had stood within ear-shot of the "Thompson Honey Shrub," yesterday, after the rain (Sunday though it was), it would have humbled your ideas of your plant. I have visited a pretty large apiary with the "Simpson" contiguous, and the "blessed bees" did not make half as much noise about it as my one-horse concern makes over the *Symphoricarpos*. Then, too, once planted, it will take care of itself, being about as self asserting as the Canada thistle, a little more useful, and a great deal more beautiful. After the bees are done with it, its gorgeous racemes of crimson berries are not excelled by any shrub of the Northern states, and at a season, too (up to the holidays), when decorative plants are wanted.

I have the *Clethra alnifolia* on the place, but will not extend its culture for bee forage. To the *Symphoricarpos* I shall give the freedom of the ranch, as long as I keep bees. I suppose, being the first to notice it, after the "Blessed Bees," as a honey plant, I have the usual privilege of naming it the "Thompson Honey Shrub," or "Honey Shrub" without the Thompson, if you will, this being a little more expressive, from a bee-keeper's stand point, than its specific name, *Symphoricarpos vulgaris*, which would perhaps be a jaw-breaker to some good bee man or bee woman. G. W. THOMPSON.

Stelton, N. J., Aug. 1879.

A NEW SPECIES OF MILKWEED.

Enclosed are the leaves and flowers of a plant, a single specimen of which I found several years ago, growing wild on rolling and rather dry ground. I transplanted it to my dooryard, where it has continued to thrive and blossom every year, and is very much frequented by bees. It grows about 2½ ft. high and branches out into an umbrella shaped top, which, from July 1st to about the 10th of Aug., is covered with bloom, of a dark orange color. It has a straight, spindle shaped root, snow white, 3 in. in diameter at the surface of the ground, and 2½ in. at a depth of 2-12 feet. J. S. PIERCE.

Granger, Medina Co., O., Aug. 1879.

We sent the specimen to Prof. Beal who kindly replies as follows:

This is a species of *Asclepias* (milkweed) which is everywhere well known as good for bees, though this species I have never met before.

Ag. Col., Lansing, Mich.

W. J. BEAL.

GERMANDER.

I send you a honey plant which blooms from 3 to 4 weeks. Please send me the name of it.

East Mo., Aug. 11, '79.

W. F. STEWART.

Answer by Prof. W. J. Beal.

This is *Teucrium Canadense* (Germander), and comes to me several times a year, as a good plant for honey. It thrives along river bottoms, and is freely visited by bees. The plant is quite common

at Lansing, Michigan. It belongs to the mint family, a large one, all or nearly all of which are good bee plants; as, catmint, peppermint, spearmint, pycnanthemum, thyme, sage, bergamot, skull cap, hoarhound, motherwort, and others. Wherever they grow in quantity, as all of them do in places, there bees thrive.

DO PURE QUEENS EVER CHANGE TO HYBRIDS?

A VEXED QUESTION.

I SEE J. H. Pierce, on page 315, of GLEANINGS, speaks of having bought of you a tested queen that was not pure; and you say that you can not account for her producing hybrids, unless it was after she was shipped and that you are not sure that this is possible. This is something that has puzzled me for the last month; and I do not see how such a thing could be, yet I know it is sometimes the case, as I have just had such a queen. I commenced this spring to Italianize what black bees I had, and my plan was to get my queens fertilized before there were any black drones flying. I had drones flying the 28th of March, and my first queen was hatched the 11th of April, and her brood was as pure as any I have (I clipped one of her wings after she was tested, as I do all my queens). Well, she proved to be a very prolific queen, and her brood was pure till about the middle of July, when I noticed quite a number of hybrids in the hive. I looked up the queen and found her all right, with the same old clipped wing.

I kept her till the 10th of Aug., when nearly all her hatching brood were hybrids. So that proves, to my mind, that the queen you sold to Pierce was pure when you tested her. I confess, I would have been very slow to take up with the idea of her becoming hybrid after shipping, if I had not had such a case myself. Do you think she could have met a drone the second time, and that without being able to fly?

I have 19 colonies of bees, all Italians, and I will venture the assertion that I have as fine a lot of queens as there is in the state. I have saved no queen, unless she was very large and prolific, and the consequence is that all my hives are very strong, and in the best condition for the fall bloom, in which I ever saw bees. When I take a frame out of the hive, it is so full of bees I have to drive them from one place to see if all is right and if there are any queen cells; and I often find them, even at this time of the summer.

L. R. JACKSON.

Fairland, Ind., Aug. 16, 1879.

I do not believe, friend J., that the queen was fertilized after she had been laying and her wing had been clipped, but I think she was fertilized the second time when she first took her flight, as it has been proved by many testimonies that such is often the case. She probably met a black drone at one trip, and an Italian at another. The spermatozoa received from the Italian drone was used first, and, when that was exhausted, the queen was, virtually, a hybrid queen, and no more. This will explain why we have queens that produce bees the greater part of which are beautifully marked, while, once in a great while, there will be one almost black; also queens that produce both pure blacks and pure Italians. I admit this is somewhat of a conjecture, but I offer it until we can have some better explanation of these well known facts.

*Wintering; Continued from Sept. Number.***REMOVING THE BEES FROM THE CELLAR.**

If they do not get too restless, I would allow them to remain until the soft maples, or willow and alder, begin to furnish pollen. Put them out very early, in the morning of a warm pleasant day, if you can tell what morning will develop into a pleasant day. Set each hive out so quietly that none of the rest will be disturbed, if you can. I would a little prefer that each stock be placed on its usual summer stand, if it be practicable, but, if not, it may make but little difference. Colonies often get badly mixed when first carried out, and queens are sometimes lost. Giving each one its old stand will do much to avoid this. If you doubt that the bees remember their old location, just set a single hive on a new stand, and see where the bees will go, when suddenly disturbed and allowed to fly.

After they are all out, and nicely fixed as they were the fall before, keep a close watch that the weak ones do not swarm out, as they are quite prone to do, after their long confinement. I do not know but I may disgust you with indoor wintering, by the many difficulties I have been mentioning; I want you to know what you have to contend with, even though I do discourage you.

ADVANTAGES OF CELLAR WINTERING.

L. C. Root estimates that bees wintered in-doors probably save as much as 5 lbs. of honey per colony. This would be quite an item, in an apiary of 100 hives. In contrast with the method of wintering out-doors without protection, I think he may be right; but, with a properly prepared chaff hive, I think there will be little, if any, more honey consumed, unless it is used in rearing brood which will add to the strength of the colony. A colony may be so wintered as to consume scarcely any stores, but it may take them all the fore part of the honey season to recover strength enough to be of any value.

NUMBER OF COLONIES TO BE PUT INTO ONE ROOM OR CELLAR.

Unless you have as many as 40 or 50, I would not think of wintering them in-doors; for a few colonies would not be able to keep up the temperature of the room, and it would be liable to get very cold. Many failures have been reported from trying to winter a dozen or more in a small room.

SUMMING UP THE MATTER OF WINTERING.

Taking all things into consideration, my advice to the A B C class, and to all others

who have not large apiaries and large experience, is to winter in chaff packed hives, in the open air, on their summer stands. If it were as pleasant and convenient to handle bees in the house apiary as in the open air, I should say, have a house apiary.

SPRING DWINDLING.

I do not know whether to style this a disease, or a condition of things that comes about naturally during cold and backward springs. I should incline to the latter, were not its ravages so uncertain; that is, it seems to affect a part of an apiary and not another part; and, at times, it will go all through one apiary, while another, a few miles away, will be entirely free from it. It is very certain that it afflicts weak colonies, as a general thing, more than strong ones, but there are exceptions even to this. It is much worse after a long, hard winter, and it disappears always at the approach of settled warm weather and new honey. Although it does not generally seem to affect stocks before March, I have seen them affected by it from Feb. until June. I have even known colonies to be listless and lifeless from its effects, until others in the apiary were sending out rousing swarms. Strong colonies that are raising brood vigorously seldom *seem* affected by it, but I suspect they *are* affected more or less by it, or by the condition of things, but have sufficient vigor and strength—animal heat, if you please—to pull through until there is plenty of warm weather, new pollen, and new honey.

CURE FOR SPRING DWINDLING.

As I have said before, I know of no positive cure except warm weather, and this always does away with it entirely; were this not the case, I should hardly be willing to class this great drawback to successful bee culture, under the head of wintering. The question now arises, can we not, by the use of artificial heat, bring about such a state of affairs as is produced by warm weather? In other words, can we not, by going to the necessary expense and trouble, save our bees and queens, even though seasonable weather does not come? Many experiments have been made in the matter, and some of them, apparently, have succeeded; but, on the other hand, many of them have signally failed. I have started healthy brood rearing in every month in the year, by means of artificial heat, but to take a whole apiary that is running down, in the month of April, and build it up, prevent the colonies from swarming out, and the queens from desert-

ing and dying, is something I have never succeeded in doing.

A singular part of the whole matter is that our friends in the South should suffer in the same way, and even worse than we in the North, as the letter I have given in the extract above indicates. Similar cases have been reported almost all over the South, although it is a more unusual thing there, for bees to die with plenty of stores in the hives. There are considerable apiaries in Medina Co., which, until within the past two years, have scarcely known a case of this spring dwindling, but which have lately been badly affected. Two of the owners have excellent cellars, and, heretofore, have rather ridiculed the idea that spring dwindling was due to other causes than careless management. Therefore, my friends, I am sorry to say that, though you have hitherto never lost a colony in your life, you must not be astonished or disappointed should you, some spring, see all your colonies go down to handfuls, in spite of all you can do, and perhaps perish outright. If I am mistaken, I shall be very glad to know it, but I think it will be safest, to base our calculations on the assumption, that bee culture, in some respects, is a hazardous business, even with the most thorough and careful.

WHAT TO DO WHEN YOUR BEES GET "SPRING DWINDLING."

Look them over every other day, if necessary, and close up the division boards, taking out all combs they cannot cover. As soon as a colony gets so weak that it cannot cover two combs, unite it with some other weak one; also, whenever you find colonies queenless, unite them with others. If you have the real dwindling, you will find queen cells started and queens missing; at almost every round you take among the hives. This is because the colonies have become disheartened and demoralized, and the only thing that will prevent this demoralization is to double them up, until there are numbers enough to repel the frost, and make them feel that there is some use in trying to hold out. It may be that these same colonies that you double up and make strong one day, will need the same thing done again, within the next 3 days, but there is no help for it. Keep the brood together so as to have it protected as much as possible, and keep reducing your colonies until they stop losing bees with such rapidity. The question may be asked, what becomes of the bees? I believe, generally, they fly out of the hives, and never get back again. During cool sun-

shiny days, they may be seen on the fences and sidewalks, on the grass and like places, often laden with pollen, showing clearly that they are trying to make a live of it, and doing the best they can. I have sometimes thought they became so chilled in their meager clusters at home, that they had not sufficient vigor to withstand the chilly spring winds as a bee from a powerful and prosperous colony would. As the Italians are more eager for stores than the common bees, it may be that this is one reason why they are often said to be more liable to this dwindling than the common bees.

Now, in regard to a decreasing apiary, allow me to say, even if the bees do get demoralized, *you* must not. Fix up the hives and combs where the bees have died. Brush out the dead bees and bury them, that inquisitive visitors may not make a great fuss on seeing heaps of dead bees. and while you make a retreat, do every thing in good order. Make the apiary neat and tidy, just as you would if every hive was boiling over with bees. Do not leave any filled combs exposed to robbers, but as fast as they are taken from the bees, either shut them up in bee tight hives, or carry them into your bee house. Your neighbor may have hives strong with bees that will like no better fun than to clean your hives out, and after they get once to going, you may find they will clean out your hives that have bees in them too. During the past few weeks, I have had more complaints of robbing in connection with this spring dwindling, than ever before, perhaps, in the spring. Some of the friends seem inclined to lay the whole trouble to the vicious bees belonging to their neighbors, or coming from the woods.

During the doubling up process mentioned above, many queens will be thrown out, and if the season is far enough advanced, they may be sold to those about you who have colonies strong enough to divide. As a proof that these queens are just as good as any, just put them into a strong colony and you will see them go to work just as well as they did during the summer previous.

Well, suppose the bees all die; what then? Why, you must do the best you can, and if none are left, go out among those about you who are more fortunate, and buy more. By paying a dollar a lb. for bees, as I have done for the past month, or by buying hives and all, as cheap as you can, with your stock of hives and combs, you may build them up at a rate that may astonish not only those about you, but even yourself as well. In order to

save your queens, it may be well to purchase before your bees are quite all gone. You will find that bees from another yard will take hold and go to work just as well as they ever did. Even this 10th day of June, I have noticed colonies that seem not to have recovered entirely from the siege they have just passed through, while stocks right by their side, no heavier, but which were purchased 10 miles away, perhaps, seem to rear brood and build up equal to any thing I ever saw.

WHAT TO DO WITH COMBS FROM HIVES WHERE THE BEES HAVE DIED.

Put them safely out of the way of bees, either in tight hives, or in a bee proof room, and if you have not bees enough to cover them by the middle of June, or at such a time as you shall find moth worms at work among them, be sure that all the combs are spread at least two inches apart, as recommended in BEE MOTIL. Now, whatever other precautions you take, you *must* look after these empty combs occasionally. They are very valuable, and must not be allowed to be destroyed. A very good way to keep them is to put them in empty Simplicity hives, piled one over the other. This keeps them perfectly protected, and yet you can quickly look them all over as often as once a week at least, until they are used. But suppose they do get moldy, or full of worms, what then?

WHAT TO DO WITH COMBS THAT ARE SOILED, MOLDY, AND FILLED WITH DEAD BEES.

When I wrote the article on DYSENTERY, I forgot to mention what should be done with the combs after the bees had died. Many times, you will find the cells full of dead bees, and anyone who has tried it, will know what an endless task it is to try to pick them out. Well, do not try; but just take these combs and set them away, until you want empty combs to build up stocks, and then hang them one at a time, in the centre of a populous colony. After a few hours, just take a peep at your comb, and see how the bees do it. If it is at a season when honey is coming in, it will have undergone such a transformation, you can scarcely believe your eyes, when you come to take a look at it. I have put in combs that were full of dead bees, filthy from the effects of dysentery, and moldy besides, and found them in the afternoon of the same day clean, bright, and sweet, holes patched up, and partly filled with eggs, honey, and dollen. In one case I hunted the hive all

over for my bad comb, and then came pretty near declaring somebody had taken it away; there was no comb there that could be identified as the bad one. Do not extract the honey, pick out the bees, or fuss to wash them off with water; just let the bees try their hand at it, and see. Do not give them too many bad combs at once, or they may get discouraged, and swarm out. Give them one, after a few hours, another, and you will very soon have them all right. How do they do it so quickly? Well, each bee takes a cell, and when he has his cell finished, they are all done. Suppose you had as many boys as there are hills of corn in the field. If all went to work, the field would soon be clean. Combs infested with moth webs, and even live worms, may be fixed up in a twinkling, in the same way. If you stand in front of the hive, you may have the satisfaction of seeing the worms led out by the nape of the neck; to do this, you want a strong vigorous colony of Italians. See BEE MOTIL. A new swarm will usually clean out a hive of bad combs, in the same way, but if too bad they may swarm out. Better take them in the way I have mentioned. To be *sure* it pays to save such combs.

My friends, I have now got to the end of my book, "The A B C of Bee Culture." I do not mean to say that it is finished, for it will probably not be finished until my life here on earth is finished. The types for the whole of it are standing in their respective cupboards, and, as we are printing the book almost constantly, there are also constant revisions going on. The book was commenced two years ago last May; and, since then, new things have been coming up almost daily. Why will new things not continue to come up, as in times past? The pages of GLEANINGS will give you notice of all these new things as they come, and the A B C will embody all important matters as fast as they are tested, and become sufficiently established to entitle them to a place in it.

I take pleasure in acknowledging my indebtedness to Mr. Walter B. House, of Saugatuck, Mich., for the principal part of the glossary contained on the next few pages, and for the very comprehensive index, which he has so faithfully compiled for the whole A B C book. The part of the glossary comprised under the head of "Hives" is my own work; the rest, I believe, belongs to Mr. House.

GLOSSARY.

FIGURES AT THE CLOSE OF A DEFINITION REFER TO PAGES OF THIS BOOK.

- Abdomen of Bee.**—The terminal division of the insect, composed of a variable number of rings.
- Absconding Swarms.**—One that from any unnatural cause leaves its hive, 1.
- Adair Hive.**—See Hives.
- After Swarms.**—Those issuing after the first swarm, 3.
- Alighting Board.**—A board in front of the entrance to a hive, on which the bees alight, 5.
- American Hive.**—See Hives.
- Apiarian.**—One who keeps bees. Apiarist preferable.
- Apiarist.**—See p. 11.
- Apiary.**—See p. 11.
- Apiculture.**—The culture of bees.
- Apis (Latin).**—The family to which bees belong.
- Aphides.**—A kind of plant lice that emit a liquid sometimes gathered by bees, and called honey dew, 19.
- Artificial Comb.**—Comb Foundation, 19.
- Artificial Fertilization.**—Impregnation of queens in confinement, 19.
- Artificial Heat.**—Warmth artificially produced, and applied to bees, 20.
- Artificial Pasturage.**—Plants and trees cultivated for the honey they yield, 20.
- Artificial Pollen.**—Rye meal or other substances fed to bees as a substitute for natural pollen, 139.
- Artificial Swarm.**—A colony made by the division of one or more swarms, 21.
- Balling.**—The manner in which bees cluster about a strange queen, in attempting to sting her.
- Bee Bread.**—See Pollen.
- Bee Climbers.**—Apparatus to assist one in climbing bee-trees, 30.
- Bee Culture.**—The care of bees.
- Bee Dress.**—A suit adapted to prevent stinging by bees, 26.
- Bee Gum.**—Term applied to that part of a tree or log which is, or has been, occupied by wild bees. Applied by our friends in the South to all kinds of bee hives.
- Bee Hive.**—A box or other receptacle made by man, to be used as a home for the honey bee, and usually containing but one swarm. (See Bee Gum and Skep.)
- Bee House.**—A house for bee hives. Also applied to the rude sheds seen about the country, where one or more hives are crowded together.
- Bee Line.**—The most direct route between two places.
- Bee Moth.**—A grey miller, $\frac{3}{4}$ in. long, the larvæ of which feed upon and destroy combs, 31.
- Bee Plants.**—Plants which are valuable as honey producers.
- Bees Wax.**—See Wax.
- Bee Tree.**—A tree occupied by a swarm of bees.
- Bell Glass.**—A bell shaped glass used much in England for surplus honey.
- Black Bees.**—A species whose color varies from dark brown to black. They are natives of Germany.
- Bottom Board.**—The floor of a hive.
- Box Hive.**—See Hives.
- Box Honey.**—Honey stored in boxes or sections.
- Bristoning.**—Fumigating with sulphur. See Fumigating, and Taking up Bees.
- Broad Frame.**—A frame used for holding section boxes.
- Brood.**—When applied to bee culture, larvæ in all stages. Not applied to bees after emerging from the cell, however young they may be, 34.
- Brood Comb.**—Either worker or drone comb used for breeding; usually applied to worker comb.
- Brood Nest.**—The space inside the hive, occupied by eggs and brood, extending in all directions from the center.
- Brood Rearing.**—Raising bees, 34.
- Candied Honey.**—Honey that has solidified, 40.
- Capped Brood.**—See Sealed Brood.
- Capped Honey.**—Honey in cells that are sealed with wax.
- Cappings or Caps.**—The covering of brood or honey in cells.
- Cell.**—A hexagonal depository for honey, and apartment for brood rearing, made by honey bees of wax; two sizes. See Honey Comb and Wax.
- Chaff Hive.**—A hive having double walls filled with chaff at all seasons, 94.
- Chrysalis.**—State of Brood in transition from larvæ to a fully developed bee. Termed also pupa and nymph.
- Closed End Frame.**—See Hives.
- Closed Top Frame.**—See Hives.
- Clustering.**—Manner in which numbers of bees cling together.
- Colony.**—A stock or swarm of bees, consisting principally of worker bees; but has, when perfect, one queen and an indefinite number of drones.
- Comb.**—See Honey.
- Comb Basket.**—A tin receptacle, with handles and a close fitting cover, for containing combs, or carrying them from place to place, 43.
- Comb Foundation (Abbreviated, fdn.).**—Thin sheets of wax, which have been passed between the two rollers of a fdn. machine, having the shape of the bottoms of cells with their edges partially raised. An artificial fdn. or partition upon which bees build comb, 44.
- Comb Foundation Machine.**—A machine consisting principally of two metallic rollers engraved with such accuracy that thin sheets of wax passed between them will have the form of the bottoms of cells, 44.
- Comb Holder.**—An apparatus which may be attached to the outside of a hive to hold a frame of comb.
- Comb Honey.**—Honey which has not been removed from the comb.
- Comb Guide.**—Generally a wooden edge, or a strip of comb or fdn., in the top of a frame or box, on which comb is to be built.
- Cushion.**—A case or bag filled with some soft and porous substance, as chaff, for covering brood frames on top or side.
- Cyprian Bees.**—From the Island of Cyprus. They differ but little from the Italian.
- Davis' Transposition Process.**—See Grafted Cells.
- Decoy Hive.**—One placed in position to attract absconding swarms.
- Dividing.**—Separating a colony into two or more, by removal of combs or bees, or both, 55.
- Division Board.**—A board, of the same length and height of the inside of hive, used for contracting the size of apartment.
- Dollar Queen.**—Fertile queen, that has been laying less than 21 days, and reared from pure Italian mother, 159.
- Drone.**—A male bee larger than the worker, useful for nothing except filling the sexual office, 56.
- Drone Brood.**—Brood in drone cells, (see Cells) from which drones are hatched.
- Drone Egg.**—One that is unimpregnated, laid by a virgin queen, or fertile queen, or fertile worker.
- Drumming Bees.**—Driving from hive, by pounding on the outside, 212.
- Dysentery.**—A disastrous disease affecting bees in the spring; cause, cure, &c., 60.

Dzierzon Theory (pronounced Tseert-sonc).—The theory of Dzierzon, formulated into 13 propositions, treating mainly of queens, their virginity, fecundation, and fertility.

Embryo.—The first rudiments of existence of any plant or animal.

Entrance.—An opening in the hive for the passage of bees.

Entrance Blocks.—Three-cornered pieces of wood, for regulating the size of the entrance, 7.

Egyptian Bee.—If it differs from the Italian, it is in being lighter colored and exceedingly cross.

Extracted Honey.—Honey taken from the comb by means of an extractor.

Extractor.—See Honey Extractor and Wax Extractor.

Fdn..—Abbreviation for comb foundation, 47.

Feeders.—Arrangements for feeding bees, 73.

Fertile.—Productive, laying; as, fertile queen or worker.

Fertile Worker.—A worker that lays eggs which produce only drones, 78. See Worker.

Fixed Frame.—See Hives.

Foul Brood.—A malignant, contagious disease, being a species of fungoid growth which affects brood, 80.

Foundation.—See Comb Foundation.

Frame.—A movable structure of slats, generally four cornered, in which bees build comb which may, by this device, be changed about inside, or removed from the hive at pleasure. It was brought into use by Rev. L. L. Langstroth, in 1851. See cut and Hives.

Fumigate.—To expose to smoke; to apply the fumes of sulphur.

Gallup Hive.—See Hives.

Glucose.—See grape sugar.

Granulated Honey.—Honey that has formed into grains, in passing from a viscous to a candied state.

Grape Sugar.—A saccharine substance less sweet and less soluble than cane sugar, made principally from Indian corn; is called Grape Sugar because it is identical with the sugar found in grapes. It is often confounded with glucose, with which it is nearly identical but glucose contains more dextrose than grape sugar, which renders it a permanent liquid, grape sugar being a permanent solid. Both substances are well known in commerce, and while glucose may, by chemical means, be converted into grape sugar, grape sugar cannot, by any means known at present, be converted into glucose. The sweet principle of both substances is known under the general term of grape sugar, to distinguish it from cane sugar, and as the manufacture of these articles, as an important industry, is of rather recent date, our dictionaries and encyclopedias, so far as I can learn, have failed to make any distinction between the two. As the sweet principle of honey is grape sugar, these substances, when made pure, are a more natural food for the honey bee than cane sugar.

Green Honey.—See Unripe Honey.

Guide Comb.—Pieces of comb used as guides for building combs in brood frames or surplus boxes.

Hatching Brood.—Brood just emerging from the cells.

Honey.—The nectar gathered by bees from flowers, and brought to a viscous state, by evaporation inside the hive, after being deposited in the cells.

Honey Bag, or Honey Sack.—An enlargement of the gullet or first stomach, in which the bee carries the nectar gathered from flowers.

Honey Bee.—In general, any bee that gathers honey; but applied to the smaller classes in distinction from the bumble bee, in that they gather much larger quantities of honey.

Honey Board.—A board formerly used on top of frames, containing holes or slots over which were placed surplus boxes; now but little used.

Honey Box.—A receptacle for surplus honey, closed on all sides, but with entrance holes for bees. Mostly discarded now for the section boxes.

Honey Comb.—A sheet of hexagonal cells, the same on both sides, having a middle wall or partition. When new, weighs $\frac{1}{4}$ lb. per sq. ft., requiring for its production about 5 lbs. of honey. Brood combs are $\frac{3}{4}$ in. thick; but, owing to the shape of the bottoms, each cell has a depth a little greater than half the thickness of the comb. Combs of this thickness will hold 3 lbs. of honey per sq. ft.; but the cells may be lengthened to the capacity of 10 lbs. per sq. ft. Worker comb contains 25 cells per sq. in., on each side; drone comb, 16 cells per sq. in., on each side: cells of both are of the same depth. Sides and bottoms of cells are, when new,

1-180 in. thick. The bottom of each cell is formed of 3 rhombs, so united as to make the center of each cell the lowest part, which point is the center of three cells on the opposite side. The bottom of each cell thus forms a fourth part of a rhombic dodecahedron, and a third part of the bottom of each of the three opposite cells. Honey comb is made by the honey bee, from scales of wax. See Wax.

Honey Dew.—See p. 114.

Honey Extractor.—A very ingenious contrivance by which centrifugal force is made to throw the honey from frames or pieces of uncapped comb.

Honey Gate.—A cast iron fixture, for drawing off honey from extractors, barrels, &c.

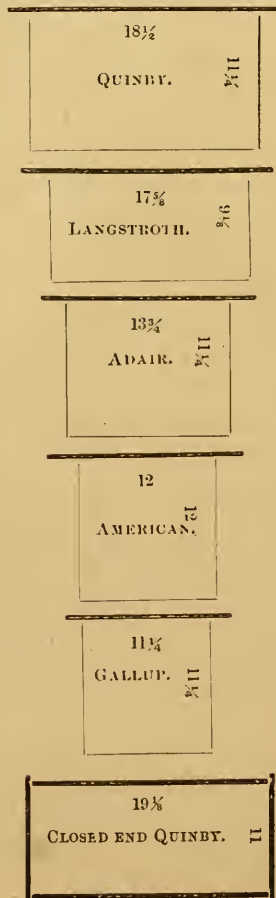
Honey House.—A building used for storing honey, combs, hives, and apianian implements; also for extracting honey and doing other work pertaining to the apiary.

Honey Knife.—A thin, double edged, steel blade, with inclined handle, used for uncapping honey for the extractor.

Hives.—I have not thought best to describe the different kinds of hives in the main part of my book, lest I should confuse the beginner by details that I cannot think at all important to his success. I have thought best to give a brief description here of the hives in use, that our readers may be able to converse in regard to them understandingly, when occasion requires. Of course, none but movable comb hives are worthy of consideration nowadays, and as the frame is the principal part of any hive, I will make a diagram of the principal sizes and dimensions in use as below.

DIAGRAM OF PRINCIPAL FRAMES IN USE.

Figures given are outside dimensions in inches. Suspended frames have $\frac{3}{4}$ inch supporting arms, or an equal prolongation of top bar.



QUINBY SUSPENDED FRAME, AND HIVE.

The first 5 are what are called suspended frames, because they are supported or suspended rather, by elongations of the top bar, or other equivalent devices. Mr. Langstroth has the credit of inventing this form of movable frame; but, as this, like almost every other invention, seems to have been the joint work of a great many individuals, it is likely that to him rather belongs the credit of first bringing it practically before the public. Mr. Quinby made the frame figured at the top of the list, after seeing Mr. Langstroth's book, in 1856. If I am correct, he chose those dimensions that he might have a hive just about a foot square and a foot and a half long inside. Judging from his experience with box hives, he doubtless thought these would be about the right dimensions. It is quite a misfortune to the bee-keeping world at large, that he did not adopt the exact size given, in Mr. L's book, especially when he came so near it. I believe one reason he gives for choosing a size a little larger was that he could thus use only 8 frames, where Langstroth used 10. This is quite an important advantage, it is true; but, as a great many bee keepers who use the Q. frame (including among their number Mr. L. C. Root, who has just (July, 1879) revised Mr. Quinby's book) have reduced the size of the Quinby frame to about that of the L. frame, I think we may safely call the frame as given by Mr. Q. rather large. Again; Mr. L., in deciding on the dimensions of the frame he has given us, contemplated its being used in a two story hive, which, I believe, Mr. Q. did not; this would readily account for the extra depth Mr. Q. gave. The Q. hive for this frame was simply a box a foot square inside, and 18 inches long, as I have before mentioned. The entrance was, I think, an auger hole, and the honey was taken from boxes placed on the top, much in the same way as from the box hives which Mr. Q. had been recommending.

THE LANGSTROTH FRAME AND HIVE.

I have given above, and under the head NUCLEUS, the principle reasons for the dimensions of this frame. Other reasons being equal, the fact that there are more of this dimension of frames in use, than of all others combined, should have some weight in deciding what frame and hive to use. None but one who has gone through the matter by actual experience can estimate the difficulties and annoyances caused by having hives and frames of different dimensions in the same apiary, or even in the same neighborhood. There will always be more or less buying and selling of hives, bees, &c., and where the hives and contents are all made from one exact and fixed gauge, there is little trouble; but where there is even a slight variation—even the fourth of an inch, it makes troubles innumerable. It is on this account, I would most earnestly plead with you to adopt the regular L. frame, if you can come anywhere near to it. While 10 frames are the standard number for a single story, there are those who use more, as well as those who use less. Adam Grim and others who have made quite a business of selling bees, have adopted 8 framed hives; and, as such a hive of bees was sold at about the usual price, there was, of course, a saving to the one who sold them. As these narrow hives cannot be used interchangeably, on or beneath the standard size, I would not advise them. We have now a lot piled up against the fence, just because they are too narrow to be worked with the rest. For the same reasons, and on account of getting boards wide enough for such covers, I would also object to hives containing more than 10 frames; if more room is wanted, put on an extra story. I have objected to the old style L. hive, such as Mr. L. gave us, principally because the upper story was made to fit over the lower one, and could not therefore be used of itself independently, as a one story hive. It also required much waste lumber, to allow of frames of one size being used in both stories. Compared with the Simplicity, they are heavy to handle, expensive to make, complicated and bulky when they are to be stored away or shipped, and yet their inside dimensions are, after all, no greater.

ADAIR FRAME AND HIVE.

Ever since Mr. L. gave us the dimensions of the frame he preferred, those who have had less experience than he had have been insisting that the frame is too shallow, and advising other dimensions. The frame which I have called the Adair was not recommended by Mr. A. *specially* for this reason, but because he thought it more suitable for the peculiar hive he so strenuously advised about the year 1872.

This hive, which, I suppose, should be termed the Adair hive more because he brought it so prominently before the public than because the idea was of his own originating, was termed by him the "New Idea Hive"; said idea being to arrange the frames in one long row, rather than to have an upper story, or any kind of a surplus receptacle above the brood nest. Such great things were claimed for this hive, that it was tried all over the country, and hives were made to contain not only 20 and 25 frames, but Adair even claimed he could get a queen to rear such a swarm of bees that a hive four feet long would be needed to give them room; and I presume hundreds, if not thousands, of such hives were made and used. Like other similar inventions, they were said to be a success, and some there were who even went so far, as to stock their whole apiaries with such hives. Like other things again, and I hardly know why, the bees, in a couple of years, were taken out of these long hives, and they were put away out back of the barn, or somewhere else, and that was the last of them. At present writing, July 7th, 1879, I know of but two bee keepers who use them, and they do not use them anything like four feet long.

Before closing the subject of what has been called, in pleasantry, the "long idea hive," it may be well to state that an unscrupulous vender of patent hives, N. C. Mitchell, by name, about the time every body had dropped this "long idea" as a mistake, commenced to introduce it to country people, as his patent hive, claiming it as his own invention, and that the most wonderful things could be achieved by its use. At the same time, he claimed to have a patent also, on all division boards for hives, and has been, for the past four years, blackmailing innocent farmers, by threatening them with prosecution, unless they hand him over \$10. for the right to use, etc. Where they used neither the long hive nor division board, he claimed also to have a patent on a simple cloth cover, or any kind of a quilt, placed over the frames, and thus obtained, and, I fear, is yet obtaining, considerable sums of money. When the matter is sifted down, it is found that this Mitchell has a patent only on an iron lug to be applied to a division board, which is so impracticable that neither he nor any one else has ever made use of it; a fair sample of the way patents on bee hives turn out when investigated.

THE AMERICAN HIVE AND FRAME.

The hive known throughout the country as the American hive was invented by H. A. King, about the year 1865. Mr. K., it seems, considered the L. frame too shallow, and sought to make a tall hive like the box hives in common use, having movable frames like the L. hive. While a shallow frame may be lifted out at the top of the hive very readily, it is much more difficult to use a frame a foot deep or more, in the same way. To obviate this, he made the hive with a movable side. A great many hives were sold, and it was very extensively introduced, perhaps more so than any other patent hive that has ever had an existence. I believe the decision has been pretty general, however, that the movable side is a very undesirable feature, as well as the tall frame it was designed to accommodate, and the hive has been either discarded or so much modified that none of the patented features are left. The frame was, originally about 12½ wide, by 16 or more inches deep, but after the long Adair hives came in vogue, or about that time, it was changed to a frame exactly a foot square outside. This was a gain, in getting it into a regular size, but the American hives scattered about the country contain frames of such a diversity of dimensions, that the term American frame or hive scarcely means anything. Reducing the depth to 12 inches was a great improvement, but even that is too deep for a two story hive, and most hives, since the advent of fdn., are used two stories high or more.

THE GALLUP FRAME AND HIVE.

This frame was first brought prominently before the public, by Elisha Gallup. He used so small a frame, because of the facility it gave for building up small colonies or nuclei. The hive he recommended was, at first, about 13 inches long, holding 12 such frames. It is the frame used and advised by Prof. Cook, G. M. Doolittle, and many others, and there are those who claim that better results can be secured by it than by any other of the larger frames. It is possible that this is the case in the hands of one long used to this frame, but I think the masses generally will succeed just as well with the L. frame. It is objectionable, because it is too deep to be used

to good advantage in a two story hive, and the advantages of having both upper and lower story exactly alike are too great to be lightly ignored. It is also objectionable, because there are more frames to be handled, to accomplish a certain amount of work. At one time, friend Gallup used two rows of these frames side by side, and named it the "twin" hive. These, like the Adair long hive, were considerably used, and some large results obtained from them, but they are now, I believe, laid aside again, for the old two story plan of giving more room, and getting surplus.

CLOSED END QUINBY FRAME AND HIVE.

Ever since Langstroth brought out the movable frame, there have been, every now and then, individuals advocating having the frames at fixed and regular distances, that the bees may be obliged to build their combs of exact thickness. I do not know what may be accomplished with the aid of fan, but, at present, the majority agree that combs as they are usually found, are better handled without being fastened at fixed and regular distances. The American frame, as it was made originally, had the top bar very nearly $1\frac{1}{2}$ inches wide; as this is the distance which brood combs should be from center to center, of course, the top bars came close together in this case, closing the space and forming a honey board or chamber floor, and making what is called the closed top frames. To be sure, there are some very decided advantages in such arrangements; such as, having the frames solid and substantially held when hives are to be moved, doing away with a honey board, etc. But, alas, the frames are not "movable," and although thousands of such hives were introduced and sold, nearly all of them were soon laid aside. The L. arrangement seems to be the only one that stands the test of years of service.

Well now, the Quinby hive of which I am about to speak is not a closed top frame, but it is a closed end frame. One great objection to the closed top American frame was, that it killed so many bees. Well our friend, Quinby, made a very long frame, and got the end bars so far away from the centre where the bees are generally found, that they would be far less likely to be in the way, when the frames were being closed up in place. It will be remembered that, in this frame, it is the ends that are made $1\frac{1}{2}$ inches wide, instead of the top bar. That they may not fall over too easily, a hook of hoop iron is nailed to one of the lower corners, which hooks on a strip of similar hoop iron nailed to the bottom board. It will be noticed that this closed end frame, Quinby hive is the simplest form of a movable frame that can well be devised. For a summer hive, 6 frames, with a pair of panels to close each of the outside ones and some simple board for a cover, is all that is needed. Of course, the whole must be placed on some kind of a flat board for a bottom board. If you wish a smaller hive, take out one or more frames and close in the panel; if larger, put in frames as long as they may be needed. The troublesome division board, in all suspended frame hives, is here dispensed with entirely. To be sure, the same idea can be applied to any of the frames mentioned; but with tall frames it is more troublesome, because you have the closed end bars nearer the bees, and there is a greater surface to be gummed fast, every time the hive is opened and closed. In fact, there is no standard size of Quinby frame, if I am correctly informed. Quinby's neighbors who use them, including his son-in-law, Mr. L. C. Root, and Capt. Hetherington, who, it is said, has over a thousand hives, all use different sized frames.

Why is not this frame and hive more in use? Because it places the combs at fixed distances, which will remain a great objection so long as the bees will persist in building combs of such irregular thicknesses. If you think this can easily be got along with, take two heavily filled combs, with bulged cells along the top bars, and try to make them come up together. With suspended frames, this can easily be got along with. Also, try to close up a hive made of so many loose pieces, and try to do it quickly, without killing bees. In short, try using such hives in the apiary a year or two, by the side of suspended frame hives. I know there is a man found, once in a while, (yes, and I know one woman, too, a very successful one, Mrs. Axtell, of Roseville, Ill.) who will give the preference to a closed end frame; but there are so few, in proportion to those who prefer the other kind, that I have thought best not to try to describe the hive in full, in my book. There are several who have used the hive a few years, and then, at great expense, have had the combs all transferred

into suspended frames. If any of you think you would like to adopt such a hive, I would advise you to purchase L. C. Root's excellent book, entitled "Quinby's New Bee-keeping."

I have said nothing in regard to surplus arrangements for these various hives, for those described in this book can all be adapted to them. Where a frame is very deep, the sections should be placed at the side, as well as above the brood nest, and are then termed Side Storing Boxes. As a general thing, it seems to be well decided that the hives with shallow frames give far the most surplus. This brings us to the subject of extremely shallow hives.

BINGHAM'S HIVE.

Mr. T. F. Bingham of Otsego, Mich., has used a hive, and I believe is using it still, with frames only 6 inches in depth. While such extreme limits may be used, and successfully, too, especially by those advocating them, they will, as a general thing, be found inconvenient by the masses. Very tall frames, very shallow frames, very large and very small frames, triangular frames, five sided frames, and, in short, almost every imaginable kind of frames have been used and patented. Yes, many of them have been tried and abandoned over and over again. Of late, it seems that a great many of them have been patented over and over again; for patent hives have got to be such a legion, it is not at all strange that the patent office officials should fail to be able to tell what has, and what has not, been patented. I would not discourage inventive genius, but I would caution our A B C class about traveling the same path over again so many times, not knowing that the ground has been thoroughly worked over before. As a general rule, I think the most ignorant class of bee keepers we have are those owning patents on hives.

House Apiary.—A double walled building usually of octagonal or rectangular form, in which bees are kept both summer and winter in separate hives as out of doors.

Hybrid.—A cross between two species. In bee culture, applied to a cross between blacks and Italians.

Hymettus.—A country of Greece, famed for the superior quality of its honey, which is of light golden color, and gathered from mountain thyme.

Italian or Ligurian Bee.—A native of Italy, distinguished by three bands of yellow across the upper part of the abdomen of the worker bee.

Italianizing.—Changing from any other species of bees to the Italian, &c.

Introducing.—Method of presenting a strange queen to a colony of bees, so that they will accept her.

Lamp Nursery.—A device used in rearing queens; a double walled tin hive, with space between filled with water kept warm by means of a lamp, &c.

Langstroth Hive.—See Hives.

Larva (pl. Larvæ).—The bee in the grub state, from the time of the hatching of the egg until the capping of the cell; in other words, unsealed brood.

L. Frame.—Langstroth frame (See Hives).

L. Hive.—Langstroth hive (See Hives).

Ligurian Bees.—See Italian Bees.

Living Bees.—Noting the direction of their flight.

Mandibles.—Jaws of the bee, which work sidewise instead of up and down as in higher animals.—Cook.

Manipulation.—Handling of bees.

Mat.—A covering for brood frames to be used under the cushion, quilt, or sheet to keep them free from propolis, or they may be used alone, made of wooden strips, woven with cord.

Extractor.—Honey Extractor.

Metal Corners.—Tin Fixtures for securing corners of frames and forming on the upper bar an edged support, which can not be made fast by propolis, and under which no moth worm can secrete itself.

Mitchell Hive.—See Hives.

Movable Frame.—See Hives.

Natural Swarm.—A swarm which issues spontaneously.

Nectaries.—The lower part of the petals of flowers where nectar is secreted.

Neuter.—See Worker Bee.

Non Swarming Hive.—One so large, or so constructed, as to control the desire to swarm, an end never yet satisfactorily obtained.

Nucleus (pl. Nuclei or Nucleuses).—A miniature colony of bees, generally used for rearing queens. Should have a queen or means of rearing one.

Nurse Bees.—Bees that care for brood; generally, those less than two weeks old.

Nursery.—A place in which queens are reared. See Lamp Nursery.

Nymph.—See Chrysalis.

Observatory Hive.—A hive constructed partially of glass, to allow examination of work inside without disturbing bees.

Overstocking.—Having more bees in one locality than there is pasturage to support.

Paraffine.—A white, translucent, crystalline, substance, tasteless and inodorous, obtained from the distillation of mineral and vegetable tar. It resembles spermaceti. It derives its name from its remarkable resistance to chemical action.—*Webster.* It is sometimes used as a substitute for beeswax, for coating barrels and other utensils for containing honey.

Parasite.—A species of lice that live on the body of a bee, 63.

Parent Stock.—A stock from which a swarm issues.

Parthenogenesis (or Virgin Breeding).—The law that life is imparted by the mother independently, and that every egg, as originally developed in the ovaries, is of the male sex, but whenever fertilized it becomes transformed into a female.

Pollen.—Fecundating dust of the antheral part of the stamen of flowers, gathered by bees, and when mixed with honey used for food of young bees, sometimes called bee-bread.

Pollen Basket.—A slight cavity on the outside, just above the second joint, of each of the two hind legs, in which the pollen is carried, 137.

Propolis.—A resinous substance gathered, probably, from the buds of certain trees, by bees, and used in covering rough places, and cementing and filling cracks about the hive.

Pupa.—See Chrysalis.

Q. Frame.—Quinby frame.

Q. Hive.—Quinby hive.

Queen.—The only fully developed female in the colony; the mother of all the rest.

Queen Cage.—An enclosure of wire cloth, or of wire cloth and wood, in which to confine a queen for introduction or shipping, 38.

Queen Cells.—Elongated cells, in which queens are reared.

Queening.—Introducing a queen to a colony.

Queenless.—Having no queen.

Queen Rearing.—Raising queens, 159.

Queen Register.—A printed card so arranged as to show at all times the condition of the queen in the hive, on which it is tacked.

Queen's Voice.—A note frequently uttered by a queen, probably produced by her wings.

Quilt.—A cover for brood frames made by putting wool or cotton between two pieces of cloth, and sewing them together.

Quinby Frame.—See Hives.

Quinby Hive.—See Hives.

Rabbit.—Lately applied to a strip of folded tin, to be used in any hive where frames are suspended by the top bar, either with or without metal corners, to aid in making frames more movable, and to assist in keeping bees free from the ravages of the bee moth.

Rendering Wax.—Separating the wax from all foreign substances by melting and straining. Usually applied to the operation of converting combs into wax.

Rhomb.—An equilateral parallelogram, having two acute and two obtuse angles; one of the 12 equal sides of a rhombic dodecahedron; one of the lozenge shaped parts of the bottom of a cell, 110.

Rhombic Dodecahedron.—A solid having 12 rhomb shaped faces, 110.

Ripe Honey.—That which has by evaporation become sufficiently thick to be sealed in the cell.

Robbing.—The act of pilfering stores from another hive, instead of obtaining them in the ordinary way from the fields. It occurs only in time of scarcity of stores, 165.

Royal Cell.—See Queen Cells.

Royal Jelly.—Food of queen larvæ, 149.

Sealed Brood.—See Capped Brood.

Sealed Honey.—See Capped Honey.

Section Box or Section.—A small box for surplus honey, open on two sides.

Separator.—A strip or piece, generally of tin, placed between two section boxes, to insure straight comb.

Sheet.—A covering of single cloth, for brood frames.

Skep.—A term sometimes applied to any sort of a bee hive.

Spent Queen.—One that from old age becomes incompetent to lay any eggs, or but few which produce drones only.

Spermatozoid (pl. Spermatozoa).—One of the Animalcula contained in the generative fluid of drones.

Spring Dwindling.—Slow decrease in size of stocks, in early spring, 241.

Starter.—Comb or fdn. fastened in the top of surplus boxes, to induce work therein.

Sting.—A weapon of defense, contained in the posterior part of the abdomen of worker bees and queens, composed of 3 parts, two of which are barbed, 192.

Stock.—See Colony.

Super.—Any receptacle for surplus comb honey, applied by our friends across the water to any kind of upper story.

Swarm.—A large number of bees leaving the parent stock at one time, for the purpose of taking up new lodgings, accompanied by one queen in the first swarm, and in after swarms (see Colonies) by one or more.

Swarming Season.—The time of year in which bees are most inclined to swarm.

Taking up Bees.—Killing bees in fall, to get the honey. A practice now going rapidly out of use.

Tested Queen.—One whose progeny has been examined and found pure, 160.

Transferring.—Changing bees and combs from one hive to another; changing comb from one frame to another. Usually applied to the operation of changing bees and combs from box hives to hives with movable frames.

Transposition Process.—See Grafted Cell.

Unqueening.—Removing queen from a colony.

Uripe or Green Honey.—Honey which has undergone but little change by evaporation, and contained in unsealed cells.

Virgin Queen.—A queen which has not been fertilized.

Wax.—A natural, unctuous, secretion of honey bees, formed in delicate scales, in the eight wax pockets, on the under side of the abdomen. It is formed both in activity and in repose, but in much larger quantities while the bees are quietly clustered inside the hive. The production of each pound requires about 20 lbs. of honey. It is used by the bees for comb building, 222.

Wax Extractor.—An apparatus by means of which wax is rendered by application of steam.

Wax Pockets.—The 8 depositories under the rings on the under side of the abdomen of a worker bee, in which wax scales are secreted.

Wax Press.—A device for rendering melted wax by pressure.

Wedding Flight.—The flight of a virgin queen, for the purpose of meeting a drone.

Wild Bees.—A term applied to honey bees, that live in the forest, in hollow trees, or in cavities of rocks, or in other places away from the abodes of men.

Wind Breaks.—Tight fences or close hedges, to keep winds from the apiary.

Worker Bee.—Erroneously called neuter; an undeveloped female possessing the germ of nearly every organ of the queen, which may at any time become sufficiently developed to allow her to lay eggs, but only such eggs as produce drones. Does all the work in the hive except laying eggs.

Worker Egg.—An egg which is impregnated, and is laid only by a fertile queen: will produce either worker or queen.



WAX POCKETS.

Heads of Grain,

From Different Fields.

DO BEES EVER ADD A FIBROUS MATERIAL IN COMB BUILDING TO GIVE ADDITIONAL STRENGTH?

WHAT do the bees do with the down, or fur, that they nibble from bees? I have wondered if they used it to strengthen wax. I got bees in box hives of a neighbor, and sawed off 2 or 3 inches from the bottom. I put the pieces of comb with brood on the top of weak colonies, and covered them with knit woolen garments. They filled the remaining space under the garments, with new wax, applying enough lint to make the wax tough.

JAMES M. LEWELLING.

Spiceland, Henry Co., Ind., Aug. 1, 1876.

This is an important matter, and one which I have been revolving over and over, for some time. I have seen comb in the brood apartment, that appeared to have, added to the wax, something like the papery substance of which a hornet's nest is made. The cappings over brood show this, in a degree. What is it that the bees add to the wax to make these cappings? Can we add anything to the melted wax, that will cheapen the material for making fdn., and that will give this additional strength and security against sagging? I will pay \$25.00 to the one who will work this out so as to make it, practically, a success.

SHALL WE HAVE ONE TIER OF SECTIONS OVER THE BROOD NEST, OR TWO?

A. I. Root:—I wish to congratulate you on the perfection of your machinery which turns out such nice section boxes, and both broad and narrow L. frames. The story and a half hive is a marvel for cheapness, and is so pronounced by all who have seen it. At the beginning of the honey season, I was especially pleased with the honey crate. I liked it better than the broad L. frames; but, just to test them, I tried one hive with broad frames. I could easily have tried more, but thought more of the crate. My bees with the broad frames filled their section boxes, capped every cell, and then lay out some two weeks, and finally swarmed. While those which were just as strong, but were given, at the same time, the crate with only 24 boxes, swarmed before their boxes were full, and did not fill their boxes nearly as soon as the others filled their 56 boxes. In fact, but few of the colonies having the crates filled all their boxes full, and some colonies have had their boxes on all the season, and I fear will not store one lb. of honey. I think, next season, I shall have two tiers of section boxes in most of my hives.

L. H. COBLENTZ.

New Madison, Ohio, Aug. 18, 1879.

I believe the majority agree with you, friend C., that an upper story with broad frames is filled almost as quickly as the $\frac{1}{2}$ story, where the colony is strong. There is still another advantage; where you have broad frames, you can put one on each side of the lower story, and get the bees well started in the sections before the upper story is put on, and then raise them up. Of course, you cannot do this readily with the case that contains only a single tier of sections.

HOW TO "INTRODUCE" A LB. OF BEES AND A QUEEN.

A. I. Root:—The lb. of bees and queen you sent me on the 15th inst. was received on the 19th, about sundown; I put them in a Simplicity hive, took two frames of brood from a strong colony of blacks (I had no others), then put in 4 frames of fdn., opened the cage to let the bees out, put on the cover, and left them till morning. I went out to look for the queen, taking my smoker with me. I found the queen without any trouble. She was all right, and

seemed perfectly at home. I did not need the smoker; they were as quiet as lambs. They are busily at work late and early, and, from all appearances, are doing well. I feel well satisfied with my little pets thus far.

DO ITALIANS DRIVE OUT THE COMMON BEES?

I was watching them a few mornings ago, and noticed something, to me, rather strange. Some of the blacks had hatched and were flying; and when they tried to enter the hive the Italians would not let them in, but chased them away. In the afternoon, I noticed them again, and found that they made no objection to their coming in. Why did they reject them at one time and accept them at another? Was it because they were bringing in supplies that they accepted them, and rejected them when they were not? Is this a peculiarity of the Italians?

I am an A B C scholar, and have been in the bee business but two years. Last fall, I went into winter quarters with 20 stands, and wintered them in the cellar. I lost one during the winter. After I set them out in the spring, they began to swarm out and dwindle away, till I had but 8 left. I then bought 4 more, and now have 25 stands, 15 in Simplicity and Langstroth hives, and 10 in box hives. For this section of country, I think the 1-2 story the best, the half story holding one tier of sections. I shall have my hives made that way next year. This has been a very poor honey season with us, but my two first swarms of this year have made some honey in the sections. The honey supply failed here about the 4th of July. I have been feeding some of my late swarms, for the past two or three weeks. My opinion is that, unless we build up our late swarms by feeding, we will have a more doleful report to make next spring than we did last, about bees dwindling and swarming out. One of my neighbors had two swarms come out a few days ago; on examining the hives, there was no honey in them.

Fayette, Wis., Aug. 30, '79.

C. ABRAHAM.

I have never seen Italians drive out the native bees, and I can scarcely think it possible, that the bees themselves recognize any difference on account of "color." If the blacks are attacked by the Italians, I think it must be because they are of some hive having a different scent. If they are hatched in the hive, I cannot see how this is possible. I speak of this at length, because several have written that when the young Italians begin to hatch, they have, at times, driven out the black bees. I, of course, do not doubt the truthfulness of the statements, but I think the conclusions were drawn through some mistake or misapprehension.

AN A B C SCHOLAR'S EXPERIENCE, BEE HUNTING AND ALL.

As one of your A B C scholars, I will give my experience. I bought, this spring, 10 stocks of bees for \$20. I sold 4 for the same amount, therefore had 6 stocks "for nothing." I divided into 10, lost one, and had one given me (box hive), which I will transfer in the spring. I transferred 4 hives this spring, with success. My bees have no honey, and I will have to feed. Not a very favorable report for a beginner, is it? I tried my hand at introducing queens, and lost 2 out of 5. Robbers got into one hive and killed one of my pets. When I bought the bees, I was very much afraid of them, and would not think of going near them without a veil on; but I can now work with them without much trouble, though I get stung occasionally. I took my family to the country for health, and while there found two bee trees. I followed your directions, but had a cigar box instead of a regular bee hunting box. I was almost afraid to take the bees, and my friends were as great cowards as myself. I got two old frame hives, and put them in with little trouble. One tree was a large oak. I cut the tree, and then cut out a block. I had no veil on, and rolled up my shirt sleeves to get into the hole. I took out comb enough for 8 L. frames, and half a bushel of bees, and got stung but twice. They were hybrids, and a large swarm. I Italianized them by getting a tested queen from H. H. Brown. I put it in my first hive for one week, then took it out and put it in the large

hive, and took the black queen out of the large hive, lifted off the cover of the small hive, and threw her on the frames, little expecting she would be received; but she went to work as did my tested queen. I used scented water. How is this for my first experience with bees? I hope you won't get disgusted with your A B C scholar. JAMES SHORE.

Germantown, Pa., Sept. 3, 1879.

Never fear, friend S., that I shall get tired of hearing from my pupils, especially, when they push ahead with the energy you have shown. I would like to have been there when you had your sleeves rolled up, taking the combs out of that tree.

STRANGE FREAK OF AN ITALIAN QUEEN.

Having hived a first large swarm of Italians, Monday, Aug. 18th, in a hive containing 5 frames of comb and 5 of fdn., I examined the hive the next day, and found all quiet. I saw a beautiful Italian queen, and, it being a first swarm, thought all was right. On Saturday, Aug. 23d, I examined them again, and found no queen and no eggs, but a few queen cells started, which proved the colony to be queenless. I gave them a frame of Italian brood. On Friday, Aug. 29th, I examined them again, and found the same Italian queen, with two frames filled with eggs, and two queen cells started on the frame of brood I had inserted, which have been destroyed since. Could she have been a virgin? or what could have been the cause of her absence such a length of time? If I had overlooked her, which I am certain I did not, why did they build queen cells, which is a proof of a queenless colony? JAMES A. PRITCHARD.

St. Gabriel, Iberville Par., La., Sept. 1, '79.

I have met with similar cases where the queen, apparently, would be gone several days, and then return as you have narrated, but I have generally concluded I had missed her in looking over the combs. Although the fact of their starting queen cells seems to indicate her absence, it is not always positive evidence. I have wondered if such queens did not get into some other hive when on a wedding trip, and then get back into the right one after a subsequent trip. She might have been a virgin queen, even if she did lead out the first swarm; but it is a rare case, unless the colony is just about renewing their queen, when several are often raised in the swarming season. In such cases, the first swarm is, of course, led out by a virgin queen.

"HANDLES" FOR PACKAGES OF BEES OR QUEENS, ETC.

Let me suggest that you attach a handle of some sort to the side of the cage you wish to be uppermost, as the express agents pay no attention to the notice you put on them, and they seem to be afraid of the bees. There was a string attached to one end of my cage, where the cord crossed, and the express man on the steamer brought it out dangling by this string. It was a wonder to me that there was not more damage done. Not having received the hives I ordered, I made a nucleus hive, and had it ready with partly drained combs when the queens came. I lost no time in taking the hive to the stand it was to occupy, when I loosened the wire cloth a little at one end, placed the cage on the frames, and tried to drive them down with smoke; but they would not stay and were soon all flying in the air. In a few minutes, they thickened about a stick in a brush pile near by, where I found the queen, clipped her wing, took her back to the hive, and put her in; but she was determined not to stay, and came tumbling out in the attempt to fly. I had to put her back several times before she would stay. Then all went well for a while, until the blacks undertook to rob them, but they defended themselves bravely. It was soon dark though, and that put a stop to robbing, but, by daylight next morning, they were at it again, and I had to nearly close the entrance. They are all right now. The queen commenced laying this P. M. On opening my black hive to-day, I found some Italians in it, and they are larger than my blacks, and are such beauties alongside of them. I

beg to be allowed to disagree with Mr. J. E. Dean, on p. 270, July No. of GLEANINGS; the sun does not shine more on the north side of a hive or house in N. Y. than in Miss. N. R. FITZ HUGH, JR.

Picolata, Fla., Aug. 27, 1879.

EXTRACTED HONEY WILL KEEP.

I have just returned from our fair, having taken first premium on extracted honey, over five entries, with honey taken from the comb with my extractor, in June last year, 1878. In fact, the same jar and honey was in competition last year, but failed to receive its merits. The honey was left in the jar last season, and when the jar was wanted this season for a like purpose, the honey was found to be liquid, or nearly so, and was drained off from that which was candied, the jar washed, and honey replaced, and taken with other articles to the fair. The jar was a glass stop, druggist jar, and had been kept in a dark, cool, dry cupboard, during the year. It is white clover honey, very light colored, and I am inclined to think that age has improved its flavor by removing that peculiar taste that belongs to most clover honey. F. W. CHAI MAN.

Morrison, Ill., Sept., 1879.

HOW AN A B C SCHOLAR INTRODUCES QUEENS AND PROSPERS GENERALLY.

I began bee-keeping in the spring of 1878, with 3 swarms in old fashioned hives. I sent for your A B C of Bee Culture, and concluded to work according to that, but I did not transfer my bees. I had 5 new swarms which I put into Simplicity hives, but in August I lost one of the old swarms by moths. I think they lost their queen somehow, to begin with. I transferred them in the hope of saving them, but they died. I wintered just as they stood in the summer, only I took off the sections and filled the top with straw. I lost none by spring dwindling, so I came out with 7 swarms this spring, and bought 2 Italian swarms. I have had 11 new swarms, and in August, introduced 12 Italian queens from Mr. Nellis. In 4 days from the time I received them, I had them all laying, as if perfectly at home. I made one new swarm, by taking frames of brood and bees out of different hives and putting them together. Now, I have sent for 4 more queens. Last year, I sold more than enough honey to pay for my bees and all their expenses. This year they are doing almost nothing, but will probably make enough to winter on. I have been making inquiries for 10 miles around, and find every one in the same fix.

JOHN B. CARPENTER.

West Hoosick, Rens. Co., N. Y., Sept. 5, 1879.

THE SIMPLICITY FEEDER AND DAMPNESS WHEN FEEDING.

That feeder you sent me works well. There is nothing that makes me so well pleased as to see the little fellows go for the syrup, when I go out at dusk to fill it. They make me think of sheep crowding for something to eat. The bees work well, and I am well pleased with them. They have made two cards of honey since I had them. Friend R., what shall I do to stop the dampness in the hive? In the morning, the glass in the back is covered with steam and sweat. Would it do hurt to take some candy and crumble it up and put it in the feeder, and put enough water on to make it like syrup?

Petersburg, N. Y., Sept. 6, '79. DARTUS WAGER.

The dampness on the sides of the hive, while you are feeding thin, watery food, is quite usual, and will do no harm; and, if you will look in the A B C, you will find that your plan is exactly what I advise, only I said sugar instead of candy, for no other reason only that it is cheaper and just as good. If they are not well provisioned for winter, give them the sugar and water every day, until their combs are just bulged with snow white cells of capped stores. After you have once seen it, you will know what I mean; make the combs look like "peace and plenty" in clover time. You can easily do it, if you feed constantly and regularly, every night, and every warm day. If robbers bother you in the day time, put the feeder in the upper story, or cap.

INTRODUCING, ITALIANS, WIRING FDN., ETC.

On the 8th inst., I sent a P. O. order to you for 3 Italian queens. On the 14th, they were here, and in the very best possible shape. I immediately went through the ceremony of introducing, after the fashion friend Hutchinson mentions in July No. of GLEANINGS. I had two queenless stocks in waiting, to which I gave two of the queens. The 3rd one was given to a stock very strong, by simply removing their queen and *dumpling* the Italian in her place. I gave them all a good strong smoking with tobacco and rotten wood, and closed up the hives. I did not open or disturb them again until to-day (the 14th day), and, to my great delight, I found all 3 of them busily depositing eggs. It required an effort to keep from swinging my hat, for I had been extremely anxious for their safety, as they were such golden beauties. Please accept thanks for promptness.

Get away with your black bees. Since trying them this season alongside of the Italians, I am ready to go to work in earnest next spring, to Italianize my whole apiary. I have used 20 lb. of fdn. this season, and had but *one card* which bulged or dropped down. But, friend Root, instead of putting the wire into the frames perpendicularly, it should be run horizontally. In this way, 2 wires will do more good than ½ dozen the other way, and it is much less trouble to insert it; at least, this is my experience. In this vicinity, it has been a poor honey season, and instead of the cry, "What shall we do with our honey?" we inquire, "Where is the honey to come from?" D. E. BRUBAKER.

Iowa Centre, Ia., Aug. 20, 1879.

A SURE(?) METHOD OF INCREASING THE NUMBER OF COLONIES EVEN IN WINTER TIME.

I do not know whether I should be put in the "Smilery" or the "Blasted Hopes" (I hope that is not profane). I bought 4 swarms of bees last winter, and have 4 swarms yet. No increase. I transferred 3 of the swarms from the old gums, into frame hives, and got about 20 lb. of honey from each, by the operation. That is the extent of the profits, except an amount of knowledge and a little experience which are worth to me exactly one thousand dollars (my selling price is a little lower than the worth of the articles). I shall increase my stock this winter by a sure method which I have discovered. I shall take my 4 swarms, and, by the use of proper means, increase them to 20. The method is not patented. What will you give me for it? Wait a little. I will tell you how to do it. It will cost me just the price of sixteen swarms. I intend to buy them. I know you advise all beginners to "grow up with the business," but as the young man told H. Greeley when advised to go west and grow up with the country, "It takes too much time." At the present rate of increase, I should be older than Methuselah before I could say I had five swarms. What do you think about it? W. G. ASHTON.

Cuthbert, Ga., Sept. 5, 1879.

HOW TO FIND A BLACK QUEEN.

For the benefit of beginners (I am one). I would say: To catch black queens, use a sheet of perforated tin that will just let all the workers out, and hold the queens and drones. Place the sheet of tin on the bottom of an empty hive, then shake all the bees from the combs of the colony where you wish to catch the queen into the empty hive; place the cover on close except one corner, where you must smoke the bees to drive them out through the tin. In a few minutes, there will be so few bees left that you can find the queen very easily. I catch them every time, in that way, when I could never find them by looking through the hive three or four times. JAS. A. NELSON.

Wyandott, Kansas, Sept. 6, 1879.

We ordinarily find queens without any particular search, but, with a very strong colony of black bees, I do not know but I might be induced to resort to some such arrangement once in a great while.

WHEN TO BUY BEES, WHAT TO PAY, ETC.

As you seem to like to hear from the A B C class, I write you a few lines. I have 41 swarms all in good order, but bees have not done very well here this season. I used cushions for 4 hives last winter, and think they are excellent for wintering. Which do you think is the better time for purchasing bees,

the fall, or spring? Would you think bees cheap at \$4.00 a swarm this fall? Did you ever use packing boxes for wintering? I think the GLEANINGS are just "boss." F. T. LOCKE.

Fabius, N. Y., Sept. 8, 1879.

The best time to purchase bees is undoubtedly in the spring, but if you have to pay very much more for them then, it might be best to purchase them in the fall, and then that would be the best time. I have just offered \$4.00 each for a lot of Italians in Simplicity hives. They are not provisioned for winter, and many of them have not bees enough. Were they full of stores and young bees, I would give \$2.00 more for them. Were they wintered through to next May, and strong in numbers, I could perhaps give another \$2.00. This is the buying price. If I were going to sell them, and guarantee safe delivery, by express, I should want from \$10.00 to \$12.00, according to the number purchased. You may say this is a money making business; and so it is, every step, if you can avoid losses, but any business of a like risky nature must have broad margins. Those who are careful, thorough, and expert should make money; or rather, should have proper pay for their skill and care.

I have never used packing boxes, but the chaff hive amounts to the same thing, and is not so unsightly.

ARTIFICIAL HEAT FOR A WINTERING HOUSE.

My wintering house is above ground, and when shut up it is damp, and in the coldest weather not quite warm enough. To remedy the latter, I introduce fire; but an ordinary stove is greatly in the way, and, if not frequently attended to, gives too much heat. I got through last winter (only 30 hives) without any loss; still I would like to improve. I am thinking of making a pit in the centre of the house and getting communication with the external air, and having a coal oil stove. What would you think of it? Are such stoves safe from explosion? Do they make smoke? and where should the ventilating pipe from the inside start from? near the ceiling or near the ground? You ask what is the objection to a cellar? I have never used one, but would say a very serious objection is the putting in and taking out the hives. Although my house does not maintain a sufficiently high temperature in winter, it keeps cool in the warm weather in spring. I shall feel obliged if you will give me any suggestions.

All my experiments with artificial heat have been pretty much failures, as you will see by the A B C, under the head, ARTIFICIAL HEAT. A coal oil lamp is safe (if you carry off the vapors by a suitable chimney), and not very expensive, but I doubt much whether it would give sufficient heat to dry out the walls of such a room as you mention. Putting a stove under the building would be better, but great care must be taken to avoid too much heat or disturbance. The heat furnished by a large colony of bees is the most sensible, natural, and successful of anything I have tried. Protect them with chaff cushions, wind breaks, and every thing of that kind, but leave them to fly out whenever they wish. At present, a house apiary is the best method of wintering of anything I have ever tried.

QUEENS BY MAIL, AND CANADIAN POSTAL REGULATION.

It appears that, in some parts of the U. S., the P. O. regulations respecting bees are not observed, and is not this one of those cases where "the law is more honored in its breach than in its observance?" for it is absurd. I have not heard that any attempt has been made to exclude bees from the mails in

Canada, or that any inconvenience has resulted from allowing them to be carried, although I think in some instances curiosity leads to undue interference with them.

W. P. TAYLOR.

Fitzroy Harbor, Ontario, Can., Sept. 5, 1879.

I heartily agree with you, friend T., and I have long been in a quandary in regard to bees by mail. I am very glad to hear they pass in Canada, and make no trouble. In fact, they go in our mails and make no trouble, but they are constantly in danger of being thrown out in a lump, as they were a year ago.

HOW OLD MAY A QUEEN BE, AND STILL BE FERTILIZED?

Bees have done very well in this locality the present season. My Italians have given me an excellent crop of honey, and several artificial swarms. One month ago, a very beautiful Italian queen hatched in one of my artificial swarms. She was a medium sized queen and very yellow. In ten days after hatching, I opened the hive expecting to find plenty of eggs, but not one could I find. I continued opening the hive every 2 or 3 days for the purpose of finding eggs, but without success, and concluded that I would kill her, if she did not commence laying in one month from the time she left her cell. But, on the 21st day after hatching, she commenced laying eggs, and has since proved to be a very prolific queen.

Lynn, Ind., Sept. 3, '79.

E. JAS. HINSHAW.

MORE ABOUT THAT GRANULATED HONEY.

The bees in this section have not done anything extra this season, only they swarmed very late for this section. There is something remarkable about their honey this year; it granulates in 48 hours after they deposit it in the combs. I have some on hand as white as coffee A sugar. If you would like me to do so, I will send you a sample of it, and guarantee it to be honey, but almost any man would say it is adulterated.

A. S. SMITH.

Atlanta, Ga., Aug. 27, 1879.

FEEDING TO PROMOTE BROOD REARING IN THE FALL, AND FEEDING WHILE IN DOORS IN WINTER.

I wish to feed my bees this fall late, and from Feb. on till fruit bloom, just to keep up the breeding, or egg laying, especially in my expected Italian swarm. I keep my bees in a dry cellar, from Dec. till April. Is this as good a place to feed and to breed in as in the open air? Of course, bees can't feed in a very cold day out of doors. I want to know just what I must do to induce these yellow pets, that I expect you will send me, to begin to raise bees in Jan. or Feb., and from thence on till fruit bloom, at which time I want a big hive, full to running over, of yellow bees. I shall get a bbl. of grape sugar. Is that safe to feed at such times and for my purpose?

Pawnee City, Neb., Aug. 15, '79.

C. R. MILES.

Your plan is a very unsafe one, friend M. Bees *can* be fed in the cellar, but it is almost sure to make mischief with a new hand. I would not feed them until the weather will permit them to be set out doors and to fly. Grape sugar is not good for winter, but will do very well in spring.

A ROYAL COMBAT RESULTING IN THE DEATH OF BOTH QUEENS.

Eleven years ago, I kept a few colonies, and (as the folks used to say) always had "extra luck" with them. I have been without them, however, till this spring, when I purchased a good, strong stock of black bees in a box hive. They increased to four. I also bought two, small, July swarms. I will tell you how I united two swarms, and my "extra luck," &c. My last swarm was a very small one; I also bought a small one in a nail keg. Said I, you two have to go into one; for both of you are very weak. I got hold of Langstroth's old work on the honey bee, and made one of his hives. I then obtained an empty box hive, inverted the box that contained the swarm, and, smoking them pretty well, I put the empty box over them, and commenced "drumming" them up. They took their own time in going up, I can assure you. After I had most of them in, I took the keg and did the same thing, but they did not

relish going up among the strangers one bit; so I shook what I had in the box, among those in the keg, and then proceeded again. They were very angry, however, some friends standing around getting "pricked" several times; but my smoke kept them from my face. After I had got as many in as I could, I carefully removed the combs from the box and keg, and crowded them fast into the frames, putting them in my new Langstroth. Then I shook the bees out on the top of the frames all in a bunch, quickly laying a piece of oil cloth over them, the weight of which soon drove them down among the combs. Now, as all this took time, it was fast getting dark or I would have hunted up one of the queens, but I did not. I put them all in together, thinking they would soon dispatch one of the rulers, and again settle down to business. After closing the whole of the portico with wire cloth, I left them to their fate. This was done on the 26th of July last. I kept the sun from the hive, and, on the evening of the 28th, I removed the wire cloth. The morning of the 29th, they seemed to have got used to their bad treatment, and the afternoon of the 30th, they were, to all outside appearances (as far as I could judge), "all O. K." again. Looking at them the next morning about 9 o'clock, the 31st inst., lo and behold! they had gone! "every mother's son of them!" I removed the frames with the combs which they had begun to make fast, and I made a discovery that is entirely new, at least to me. Both queens were on the bottom, tightly embraced, with the sting of one fast in the other, both dead. The sting of one had pierced the other in the first abdominal ring. Was it not queer that both were killed? So ended my "extra luck" that time.

Freehold, N. J., Sept. 1, 1879. F. C. LOCKWOOD.

This is the first case I have ever heard of, where both queens perished, and what is more singular, it seems that the bees absconded without any queen. Now, I shall hazard the conjecture that neither thing happened, and that there was a third queen that came out of the combat alive, and decamped with the swarm. In that case, of course, one of the stocks had two queens when united, but this is quite a common thing comparatively.

ARE WE TO CONSIDER BUMBLE BEES AS ENEMIES?

The second crop of red clover has been an entire failure with us, as far as honey is concerned, for the first time since we have had Italians. The bumble bees have been awfully thick, which I think is the whole cause. We plow out nest after nest when preparing our ground for fall wheat, and they just swarmed over the clover blossoms the whole time. I never saw anything like it in my life. The bumble bees took the honey from the deep tubes, before it could rise high enough for the honey bees to reach it, and they were therefore prevented from getting any. Now, suppose we offer one cent each for all the dead bumble bees the boys and girls bring us in May, June, and July.

ILA MICHENER.

Low Banks, Ont., Can., Sept. 2, 1879.

NON-PROLIFIC QUEENS.

I have delayed making that demand you invited me to make for the non-prolific queen which I supposed I had got in that nucleus you sent me in July last. Well, it turned out just as you said, that when she got over her journey she would be all right. At this date, she has her improved Langstroth hive full of beautiful yellow banded workers, and the combs full of brood and honey. It has been a splendid honey season here. I am thinking of putting on a second story to see what she can do. Therefore I will not ask for damages, but say that you have sent me an excellent queen.

R. L. MEADE.

Nassagaweya, Ont., Can., Sept. 2, 1879.

I am doing very well with my bees. I had 5 swarms in the spring, and have 12 now. Two went together and one left for the woods, and I gave one away, so I have had 15 in all. I have about 200 lb. of white clover honey. Buckwheat has been in bloom about two weeks, and bees are doing well on it. Honey is low in price here in Jackson—only worth 10 and 12c. per pound—but it is nice to have about the house even at that price.

M. V. MILLER.

Liberty, Jackson Co., Mich., Aug. 8, 1879.

MORE ABOUT DRONES IN WORKER CELLS.

I notice in GLEANINGS, Sept. No., p. 358, a communication from friend C., asking the question, "Can a fertilized queen lay drone eggs in worker cells?" Now this question grew out of an argument between friend C. and myself, as to whether the queens in question could lay drone eggs in worker cells. I do not believe that a fertile queen ever lays drone eggs in worker cells; if so, away goes the theory generally adopted by apiarists, that the cells determine whether the future bee shall be a drone or worker. Again, if the queen can deposit drone eggs in worker cells, I do not see why she can not, with the same ease, deposit worker eggs in drone cells. Friend C. claims a victory because you admit that fertile queens do occasionally deposit drone eggs in worker cells, but you "opine she makes a mistake." May not the mistake be in the observer and not in the queen? J. W. SHULL.

Pleasant Dale, W. Va., Sept. 6, 1879.

I think the Wagner theory to which you allude, friend S., has been thrown aside for some time. The queen does deposit worker eggs in drone cells oftener than you imagine; and I think I can find them in almost every apiary of a dozen hives. When the brood is capped over, you would not think of its being drone comb, unless it was shown you; for the bees, in capping, have a way of drawing in the mouth of the cells, that makes it look exactly like worker comb, only that the cells are a little farther apart. If I am correct, almost any queen will raise workers in drone cells, if you give her nothing but drone comb. You will find, in almost every hive, in the summer season, occasionally, a cell containing drone brood. You will know it by its overtopping the brood surrounding it. It is these occasional drones that enable us to get queens fertilized during the present month. Read what friend Carlin says on page 406.

NO QUEEN IN THE CAGE.

Every little while, some brother declares there was no queen in the cage we sent him. As this is a world full of careless, well meaning people, it is nothing very strange, especially, in so large a business as the queen trade is getting to be. We had the same complaint last year, to a certain extent, and so we put, in large letters, on the directions for introducing, "Look in the cage, before opening it, and, if you can find no queen, return the cage at once to us." You see I was determined to make our boys and girls careful. Well, in spite of this, we have had three or four notices that there was no queen in the cage. In fact, one very good friend of ours declares a \$5.00 imported queen was *non est*. He will take oath she was not there, while two of our clerks will take oath that they saw the queen in the cage just before she was shipped. Where then was the trouble? I really can think of nothing, unless the package was opened on the way; but, as it was securely tacked, I think such a thing very improbable. Is it not more likely that somebody was mistaken? I decided to stand the loss of the \$5.00, but I tell you, after that, we looked at every queen, just before she went to the express office, you may be sure. A few days ago, a card came from another man who had some dollar queens, as follows:

One of the cages had no queen in it. As I opened it, I saw 3 dead bees; I allowed the bees to come out on the frames, but could not discover any queen.

The 3 dead bees dropped into the hive in getting out the other bees, so I could not examine them, and did not think, at the time, that one of them might be the queen. If you will send me a queen *for* that one that *did not come* or was *dead* I will take it as a great favor.

R. CORSCADEN.

P. S.—Lest there might be a mistake, I have looked in the hive 3 times; no queen.

R. C.

Providence, R. I., Sept. 9, 1879.

And to-day, comes another:

That queen that "did not come" or was "one of the dead bees" must have come to life again, or was too smart for me. I paid most particular attention while the bees were coming out of the cage on to the frames, and wonder that she could have escaped my notice. After looking three separate times, lest by any possible means she might have escaped my notice, and seeing nothing to indicate that the queen was in the hive, I gave the bees a comb with brood, to keep them strong till I should get a queen. I did not look at them again till the 13th, when your postal of the 11th came to hand; when, on looking them over, I found new laid eggs. I looked again to-day, and saw the queen. She is darker than any I have had of you, and rather small, but may turn out to be one of the best; so I can report all queens of you are doing good work.

R. CORSCADEN.

Providence, R. I., Sept. 15, 1879.

Now will you not be careful, my friends, before blaming our boys and girls *too much*?

FURTHER CAUTIONS ABOUT ROBBING WHILE TRANSFERRING, MITCHELL, ETC.

As I have known many cases of robbing that were started by transferring, allow me to criticize your advice on the subject to beginners. I was not satisfied with your reply to D. S. Bethune, p. 298, Aug. No. We must not expect that beginners will keep the honey wiped up clean, and prevent robbers from getting home loaded, when it is difficult for them to tell a robber bee from any other. Then you say, transfer by moonlight; my experience teaches me to handle bees by no other light than sunlight. I have transferred a great many bees, and, when there were other bees near, I have always taken them into a room to perform the operation. They can be handled there without the annoyance of robbers, and allowed to clean up all remaining honey before being taken out; then they are ready to defend themselves. I think their inclination to rob each other is the worst thing we have to contend with in managing them. It seems that when they once get honey dishonestly they never forget it. I have 82 swarms and never had a swarm robbed, having taken great pains to prevent their getting started.

I would like a queen bee breast pin, if you will get them up. If you will not, I think I can furnish them, made of gold, for about \$2.50.

Mitchell was around not long ago, and sold to one of my neighbors two rights to use his hive, at \$5.00 each, and promised to send two hives and two queens. All he sent was one hive. He said he had not time to visit me, so I lost one good talking to.

Euclid, O., Sept. 19, 1879.

F. C. WHITE.

Thanks for correcting me, friend W. It was only through forgetfulness that I omitted to mention carrying the stocks to be transferred in doors. We use the wire cloth house shown on p. 300, Aug. No. By using plenty of smoke, you can get along very well by moonlight. I think you would better get up the pins. I cannot help feeling that the \$2.50 would be better invested in something else; not in buying rights of Mitchell though.

A FEW WORDS IN BEHALF OF THE ABUSED BLACK BEES.

I am a beginner and have had no experience with Italians, but am well pleased with my success. I started in last fall with 5 colonies. I lost one last spring, while some of my neighbors lost half, and others all of theirs. I now have 17 colonies in fair condition for winter, and have taken 225 lb. of most beautiful box honey. The latter part of the season has been unfavorable on account of a long drought.

MRS. S. L. KEPLER.

Mill Creek, Richland Co., Wis., Sept. 16, 1879.

Notes and Queries.

BITTER WEED AS A POLLEN PLANT.

OF what value is the "bitter weed" to the apiarist? Bees are gathering pollen largely from it now. I can send you some seed free of charge, if you wish it. D. S. BETHUNE.
Snyder, Ark., Aug. 18, 1879.

[Bitter weed occasionally furnishes pollen; see what is said of it under the head of POLLEN in the A. B. C. Thanks for your offer of seed, friend B.; but, as it is one of the worst if not the worst weed we have here, I would rather pay something to get rid of it.]

MOVING BEES FOR FALL PASTURAGE.

I am located, at present, with my bees in the wilderness of Ottawa Co., and bees are doing well on wild fall flowers. JOHN F. DIPMAN.
Elliston, Ottawa Co., O., Sept. 1, 1879.

CAN A QUEEN BE REARED FROM DRONE LARVÆ? VALUE OF ENGRAVINGS, &c.

Can a queen be bred from drone brood? Twice this season, I have had queen cells built on drone brood, when there was plenty of other brood in the hive. I pinched them off. I want to give your engraver credit for so well showing forth friend Hutchinson's tenement hives. He lives about 10 miles south of me. The other day, I was going along the road he lives on, and I knew his place the moment I saw the stars and stripes over that shingle hive, by your picture in Aug. No. of GLEANINGS; so I stopped, and had a good visit with him, and got a good many useful hints. M. D. YORK.

Millington, Mich., Aug. 19, 1879.

[They can never raise a queen from drone larvæ, but it is claimed that they do sometimes rear a drone out of such queen cells. I am glad our engravings prove profitable, and if you will look, friend Y., on page 14 of the A. B. C., you will see a picture of the kind of queen cells you mention, and a description of them.]

ONE WAY TO GET A START.

A year ago, I found a bee tree, and, when I took GLEANINGS, I found out what to do with them. I made me a hive with movable frames, transferred the bees, and they have done very well. This year, I have taken 35 lb. of comb honey, and I think I shall take some more in Sept. What do you think of that, for one that did not know anything about bees?

Millstadt, Ill., Aug. 23, '79.

JACOB REITZ.

I moved a strong colony of hybrids 8 or 10 rods away, and put a hive filled with brood and dry combs in its place. They went to work furiously to fill the new hive, working early and late, through cold, rainy days, and I said all the kind things I could for hybrids; but I have just discovered that they are taking all the honey away from the hive that was moved, and I cannot stop them. I have tried closing the hive and scenting one with peppermint, but I can't make them quarrel. Please tell me what I can do. Would you move the original swarm still farther away? MARY SIMONS.

Brocton, N. Y., Aug. 19, 1879.

[The freak is a strange one, but one that bees sometimes take. Probably the best thing you can do is to carry the old colony away a mile or more and keep it there 10 days, or two weeks; then bring it home, and it will be all right.]

I took 120 boxes, well filled, out of that chaff hive I got of you. A. R. BODGE.

Exeter, Me., Sept. 4, 1879.

HOW ONE MAN PROSPERS, WHILE ANOTHER HAS ONLY BLASTED HOPES.

One of my neighbors started 4 years ago with 3 swarms of bees. He increased his number last year (third year) to 40, and sold 1,700 lb. of honey. This season, he has several thousand pounds of honey and over 100 swarms. Others also are succeeding, while some let them run down and die out. Two years ago, I bought a gun, put them into a Langstroth hive, and raised a crop of worms that killed the bees out after they had swarmed and lost their

queen. I thought the large, fat worms, filling the cells and presenting a sharp white point, were young bees, until it was too late. I am cited to you as the best authority to instruct me how to manage them, and ask that you send me a copy of your GLEANINGS. A. S. MAGRUDER.

Rock Ledge, Fla., Sept. 8th, 1879.

[Many thanks for the good opinion your friends seem to have of me, but I would suggest the friend who succeeds so well in your neighborhood, as the best "authority" for you to go to. I wonder if your successful neighbor is not a subscriber to GLEANINGS.]

WOODEN SEPARATORS.

We have had another year's experience with the wooden separators. They are a perfect success with us. Our honey looks most splendid, and can not be beat. Our honey crop is but half a crop.

FRIEDEMANN GREINER.

Naples, N. Y., Sept. 14th, 1879.

DARK QUEENS, AND TINNED WIRE FOR BROOD COMBS.

From my experience, I think it must be something besides cool weather that makes dark Italian queens. I occasionally get them here when the mercury ranges from 65° to 98°. The blackest one I ever saw, this summer produced light colored, and well marked Italians; but, as a rule, I think light queens produce the lightest bees.

I have used tinned wire in the brood chamber over six months, and, contrary to what I expected, it has proved a perfect success. I used the first wire in Feb. In two of the frames, the tin of the wire appeared defective, and showed rust spots before the cells were used. One larva looked bluish and was taken out, but this may not have been caused by the rusted wire; the cell was then filled with pollen. My imported queen has been using wired combs over six months and I have been watching them closely. The only objection I have is the time it takes to put in the wire, and that you can not get it tight without lending the bottom bar.

C. R. CARLIN.

Shreveport, La., Sept. 13th, 1879.

[The plan given you in July No. (page 254) will enable you to draw the wires as tight as you choose, friend C., and if you will teach some girl or boy how, they will put in the wires for you at a very small expense.]

QUICKNESS IN TRANSIT.

Your card and queen of Sept. 5th, received on the 6th. In 41 hours from the time the order left the P. O., the goods landed in Goshen, safe and sound. Isn't that the fastest time on record?

South West, Ind., Sept. 9, '79.

I. R. GOOD.

[That is the way we try to do business, friend G., but we cannot always succeed so well as in the case you have mentioned. To get every thing off promptly by return mail or express, usually necessitates keeping a little larger force of hands than is actually needed to do the business ordinarily.]

I received your GLEANINGS and catalogue and was very much interested; indeed, I could not stop reading. I found on every page things which I have done wrong as a beginner.

WM. H. REX.

Lehigh, Pa., Sept. 15th, 1879.

DRONE BROOD IN WORKER COMB.

You once stated that bees would not, under any circumstances, build drone cells on fdn. of 5 cells to the inch, and, though informed otherwise, did not correct. Now, on page 358, GLEANINGS for Sept., in answer to the question, "Can an impregnated queen deposit drone eggs in worker cells," you think not, or if she does occasionally lay drone eggs in worker comb you opine she does not mean to do it. If you were here now, I could show you *hundreds* of capped drone brood in worker cells, 5 to the inch, worker fdn., and not sagged. Does that look as if the queens in this climate do not mean to do it? It is done by young Italian queens, as well as by my imported queen two years old. The desire to rear drones seems much greater here than north. Saturday, I saw one comb of fdn. 5 cells to the inch, not sagged, built out in the colony with a fertile queen, one side all worker, but, on other side, near the centre, 9 drone cells in one spot, and 7 in another, made by running cells together at the base.

Shreveport, La., Sept. 15, '79.

C. R. CARLIN.

[I beg pardon, friend C., if I have omitted to correct any of my statements that need correcting; it was an oversight, I assure you. I have never seen drone brood under the conditions you name, and I cannot think it usual in the North. It would be very convenient for us just now, for we cannot get our queens, at this time of the year, to lay drone eggs in any kind of comb.]

WHAT IS THE MATTER WITH THE BEES?

As one of your A B C class and a beginner, I wish a little information. My bees, apparently, have some disease, the cause of which is entirely unknown to me. I have in my apiary the blacks and hybrids, as well as the beautiful Italians, the former of which appear to be most affected. I find, each morning, in the entrance and on the alighting board, from 50 to 100 bees, dead and dying. I have examined the combs carefully, and find brood plenty, in all stages, and in healthy condition, and brood combs looking all right with plenty of honey, and all the bees at work with great energy through the day. Now, can you give the cause of this mortality? H. SCOTT.

Princeton, W. Va., Sept. 15, 1879.

[The 50 or 100 bees that die daily *might* be bees that die of old age, at this time of the year; but I hardly think there should be so many every day. If this is not the case, perhaps it is the disease I describe on page 55 of the A B C.]

SIMPSON HONEY PLANT.

I have one of these plants, growing and doing well, that I can remember ever since I was a little boy, and I am now forty four years old. How is that for longevity? Each year, the stalk dies after the seed ripens, and sprouts again in spring. I intend to fence off a small piece of ground, transplant some roots next spring, and cultivate it for honey and seed, and will report. W. P. IRISH.

Norton Centre, Summit Co., O., Sept. 15, '79.

QUEENS THAT STOP LAYING AND QUEENS THAT PRODUCE ALL DRONE BROOD.

I am in a quandary. I bought a dollar queen, and safely introduced her July 18th. She went right to work, and produced very handsome, two banded workers. I looked her up Sept. 8th, and she appeared quite small and had only a very small cluster of brood on one comb, and that raised like drone brood. To-day, I looked her up, and she is very large, and the drones are hatching out, but have only very narrow *rings* (yellow), not bands at all, and I could see no signs of other brood. The drone brood was regularly laid, in a cluster, on 2 combs, but in a small circle. I could not find her at first, and was afraid I had got a fertile worker. I had on a veil, and hence there may have been eggs which I did not see. I have been feeding sugar syrup to stimulate brood rearing. What is the matter?

Shirley, Mass., Sept. 16, '79. B. S. BINNEY.

[Queens often stop laying in the fall, when the yield of honey ceases, and then they, as well as the bees, grow small and inferior looking. About the drone brood, I hardly know what to say; are you not mistaken in saying that all the brood was drone brood? If not, she has thus early turned to a drone layer, and the colony will perish, unless she is removed and a better queen given them. If she has turned drone layer, her brood would not be apt to be regularly placed as you say it is.]

WHAT IS ROYAL JELLY?

I would like very much to know where the bees get the food for the young queen; I mean the white, pasty looking stuff. JOS. HARRIS.

Moundsville, W. Va., Sept. 11, 1879.

[It is the partly, or perhaps wholly, digested honey and pollen which the bees have eaten, and which they throw up and put in the cell, something as a dove feeds her young. The food given the young queen is just the same as that given constantly to the young worker brood, as nearly as I can determine. If I am wrong, I should be glad to be corrected.]

MOVING BEES SHORT DISTANCES.

I particularly want your opinion on a certain point. I keep my bees in a kind of house or shed, which I have to do on account of thieves. One of my houses does not suit me. I want to shift it about 2 rods. If I put them in my cellar (it is damp) till I shift their house, how long would they need to stay there before I put them back?

[If there are no other houses like the one you mention near, I think you can move it without taking the bees out at all. When you come to turn it around, it may be best to turn it a little every day. If moved to the cellar, the bees should stay there 10 days or two weeks, but I do not think this will be necessary. You do not state how many colonies there are in the house.]

"CHUNK" HONEY.

Another thing I want to know is this: this has been a poor year for bees in this place, and I have a great number of small section boxes partly filled, having from a quarter to $\frac{3}{4}$ of a lb. of honey. What is best to do with them? What do you do with such? One thing more: I have two hives that have not killed their drones yet, and I have some fear that they are queenless.

[Cut out the honey carefully from the unfilled sections, place it nicely on plates or in pans, and sell it for "chunk" honey. You will find it will sell faster than your honey in sections, at the same price per lb., in a home market.]

NORTH AND SOUTH ENTRANCES.

My hives face the north and I am going to face them south; for I find that, in winter and spring, great numbers of bees fall down and get chilled, and never rise again. The ground will be covered thick with them. JOHN DAWSON.

Pontiac, Mich., Sept. 13, 1879.

[I have noticed the same thing you mention at some seasons with the house apiary; but, as a general thing, the bees on the north side do just as well as those on the south side of the house.]

"PEPPERY" HONEY.

Please let me know what the bees gather *pungent* honey from. Some of the handsomest, white comb honey I have had this year has been so peppery as to be uneatable. It was produced in the latter half of July, this year, when I supposed bees were working almost exclusively on verbenas.

CHAS. C. BELLOW, and many others.

Vermillion, Dak., Sept., 1879.

[I do not know, friend B., unless it is the smart weed, or its near relative, the large kind called black heart. A few days ago Will called my attention to a hive that was so much better filled than its neighbors, that it brought forth exclamations of surprise. On tasting the honey, to see where they got it, I was much amused to find it made one's mouth smart. The sight of beautiful Italians, the same day, on this large smart weed on the borders of the pond, suggested that as its source, but it may be a mistake.]

QUEENS WITH 10. OF BEES.

The last 3 queens I received of you Aug. 8th, in lb. boxes, were all in fine order. I made swarms for bees, and now have fine colored, 3 banded, young bees from each of them. The first queen I got, I lost by being careless, and not smoking them. There is nothing like smoke with me. E. S. MINER.

Necedah, Wis., Sept. 15, 1879.

RAPE, &c.

I sowed $\frac{1}{2}$ acre of rape, on the first of July. It bloomed nicely, and gave the bees lots of work. I sowed a second lot of 3 acres, on the first of August, but, not having rain, it is likely to be a failure altogether. Bees do not work on sweet clover as they did last year, by a long way. Basswood yielded honey extraordinarily well this year. H. SMITH.

New Hamburg, Ont., Can., Sept. 2, 1879.

HOW A PATENT RIGHT MAN CAME TO GRIEF.

There has been a patent right man through here, swindling the people, by selling a very poor pattern for a gum, with the right to use it, for \$10. This lady that gave me the silver dollar to send for the smoker is one of the victims. But, right here, I must state the funny part of this patent right man's experience. This lady says he could tame bees so he could handle them well, putting them in his mouth and elsewhere, without being stung; but, unfortunately, he got one little fellow mad, when he had taken a small handful in his mouth, and he received a sting in the mouth, which caused him to spit them out very suddenly (probably they needed ventilation).

Wheeler Station, Ala., June 26, '79. A. COX.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,

EDITOR AND PUBLISHER,

MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POST-PAID.

MEDINA, OCT. 1, 1879.

And now I say unto you, Refrain from these men, and let them alone: for if this counsel or this work be of men, it will come to nought:
= But if it be of God, ye cannot overthrow it; lest haply ye be found even to fight against God.—Acts v. 38, 39.

THERE are a few friends who prefer the old style, hot blast, Simplicity smokers. E. B. Plunket, Atlanta, Ga., and J. H. Nellis, Canajoharie, N. Y., have a few of the old ones left.

A BEE often alights on a person just as it would on a fence or a tree, and if let alone it will fly away in a few seconds, and not once in a thousand times will it sting. It is only in the vicinity of their hive that bees sting intentionally.—*Cincinnati Grange Bulletin*.

AFTER a great many experiments in shipping queens to the most distant points, we have pretty well demonstrated that a section box with, at least, a part of the honey sealed is the safest arrangement. We also often keep a hundred or more queens caged in the office, ready to fill orders at short notice, and we find by far the least number of dead bees in this kind of a package, although we have tried a full sized section with sugar candy, and large bottles of water. The honey is more apt to get broken down in transit, it is true; but, by having it stored in old, tough combs, we make a sure thing of it, especially, if the cage is kept right side up. To insure this, we now put a little leather handle on it, as suggested on page 402. We will give friend F. \$1.00 for the idea, besides our thanks.

FRIEND Alley says, in his circular, he does not hire "boys and girls" to raise his queens, but that he does it all himself. Now, friend A., was it not a little naughty of you to speak in that way, and then say what you did about GLEANINGS? Our boys and girls have been shipping the queens for the last few months, the very day the order was received, which you could not possibly do, all alone by yourself. Some of our readers know how far you are behind, and one of them says he sent you \$9.00 last March, and has not got "ary" queen yet. We keep telling them to be patient, for you are certainly all right, but seriously, friend A., are there not some bright, smart boys and girls in old Massachusetts, that could help you, and themselves too, and save your reputation for promptness?

A YEAR or two ago, I sent B. B. Barnum, of Louisville, Ky., a little over \$50.00 worth of comb fdn., he promising to pay on receipt of the goods. After some excuses for not so doing, he finally, in a very unconcerned manner, informed us on a postal, that he had become bankrupt. After trying to investigate, I found he owed many bills of the same kind. When importuned, he finally said he had property enough to pay it all, but he seemed neither then nor

since inclined to have any solicitude in regard to whether his customers got any pay or not. He has since gone into business again, and I did finally receive his advertisement. Well, letters have lately been coming in asking if they should send this same Barnum honey on commission. I would, under no circumstances, entrust him with a pound of honey, and I am not sure that he should not have been put among Humbugs and Swindles long ago. We have complaints that he has never settled for honey sent him on commission years ago.

CAGING QUEENS ON HATCHING BROOD, CAGING QUEEN CELLS, ETC.

THERE seem to be certain things in bee culture that revive about once in so many years, and each one who works out the idea seems to consider himself a new discoverer. Many times, months of hard brain work and expensive experiments would have been saved, had the individual known what others had done in the same line before him. One of these is surrounding a comb of hatching brood with wire cloth, and introducing a queen by putting her on it, while it is hung in the hive. A modification of the same idea is to cover a portion of the hatching brood with a cage containing the queen. All of these plans are a great deal of trouble, and the queen is little, if any, more sure of being received when released in the whole colony, than when let out of a cage in the ordinary way. Pushing a cage into a comb destroys a great deal of brood, and the bees usually go to work and dig it out, as they will any foreign body; the queen, therefore, is never safely caged, unless a wire cloth cap is put on both sides of the comb, and the two pressed together until the edges of the wire cloth meet. A full account of my experiments and successes in this matter, as well as in caging queen cells, &c., was given in the *A. B. J.*, about 10 years ago. In the directions I have given you for introducing, these things have been carefully considered.

THE following from the *Farmers' Magazine* is a little extravagant, I fear, but still there is a world of truth in it.

HOUSEHOLD MISERIES.—My entire household, including the hired girl, is full of satisfaction over the fact that I have just driven the axe handle into the axe and wedged it there, so that it can't under any circumstances come out.

It may read like a small matter to you, but do you know that that helve had been loose for nearly five years. Yes, for five years that axe has hung itself across the yard whenever I struck a heavy blow, leaving the helve in my hand, and I suppose I have decided more than a thousand times to go in and get a hammer and chisel and fasten the helve in. I was thrown down and had my arm broken by the axe flying off, two girls had their noses broken, we spoiled the stove boiler, nearly killed three boys, and yet I didn't get around to fix the axe until today.

Foster was telling me the other day that he had finally glued the knob on the bureau drawer, and he seemed greatly relieved. I remember when that knob was knocked off—almost seven years ago. I was helping him move the bureau when the accident occurred, and I never was in the house afterwards without hearing Mrs. Foster say:

"Come, Heury, haven't you got time to fix that knob on this evening?"

"Yes, Martha," he would reply, and yet it was seven years before he got to it.

Reader, is there an axe loose in the handle, or a knob pulled off, about your premises? If so, fix it this minute, and then be happy. I wonder if spring dwindling among the bees is not the result of just such—*shiftlessness*. Up and be doing, *this minute*.

The contents of this leaf and the one following are not directly connected with the subject of bee-culture. On this account, I make no charge for them, and, if you choose, you can cut them out without reading.

Our Homes.

And we know that all things work together for good to them that love God.—Rom. viii. 28.

IF we accept this, my friends, there is certainly little cause for a Christian to worry, or be discontented, no matter what turns up. All he has to look out for is to be sure that he does not delude himself by thinking he loves the Lord, when, in reality, he loves the approbation of the world, or something of that sort; to illustrate:

Just after I had knelt in prayer last Sabbath evening at the young people's prayer meeting, one of our number asked me if I would sit up that night and take care of a sick family. In my prayer, I had asked God to show us the evil in our own hearts, and help us to correct it; to help us to see our faults, as other people saw them; to help us to put our religion into practical every day life, as well as to talk about it; to give us of the spirit of Christ, and bring us near to him, even though the way led us through disagreeable duties. I prayed with unusual energy, for I had just returned from a very pleasant Bible class which is now established at the infirmary, at 4 o'clock, every Sabbath afternoon, and I felt the approving voice of my Savior, for having gone off on such an errand, through a rather cold rain storm.

"Mr. Root, will you go and sit up with Mr. M's family? I sat up last night, and I will sit up again to-night, if I meet with no better success in getting help than I have had so far."

I looked him full in the face, and, if I hesitated a little in answering, it was so brief a hesitation that I hardly think he noticed it. Brief as it was, however, the following thoughts rushed through my mind during the interval.

Excuse number one. I am an invalid; it is not two months since the Dr. said, if I did not go off and leave my business, I would not live half my life out. It is absolutely necessary that I get to bed at 9 o'clock, every night, or I have faint and dizzy spells. Why, just think of it! sometimes I feel as if my life almost depended on my taking a bee line home, and getting my tired head on a pillow, even before nine o'clock. Of course, I ought not to go when there are plenty of well men and women all around.

Excuse number 2. I know nothing about taking care of sick folks; it isn't in my line. Some folks can work about a sick bed as handily as can be, but I should certainly be more trouble than I was worth. Why, if my wife went away, and left me to prepare a single meal, myself, I always ate it raw, because I could not handle things in the kitchen. Why, I have not watched with any body that was sick for 24 years, by actual count.

Excuse number 3. I suppose I saved this one until the last, because I was rather

ashamed of it. I have got lots of work to do to-morrow, and a great many hands to take charge of. Men who employ a great many hands cannot be expected to sit up with the sick, for it hinders a great many other people. If I did any thing, I would hire one of my hands to sit up. I am willing to do that, and, now I think of it, the proper way is to hire a regular nurse right along; and, as no one should pay all the expense, the right way is for some one to pass around a subscription paper. I have not time to do that, but I will head the paper, with a good start.

Mind you, I only thought all these excuses, and at almost the same instant a better spirit reminded me of how often I had told the young people there that, if they would only push ahead and trust God, he would give health, strength, ability, and every thing else for the work, and it came right up before me; now, old fellow, is the time to put your own preaching in practice. It would have been a comparatively easy matter to go and ask my wife to come and help, and then let her do it all, but I knew she had been up all night with a relative the night before, and that better voice bade me ask God to help me, and scrape up energy enough to make myself, at least, good for *something* in a sick room, even if it was for almost the first time in my life. As I went along the walk with my friend, I prayed that God would fit me, in strength, wisdom, and skill, for this new work, in the same way I had asked for and received so many other things.

In two small rooms, I found a family of six. The father was just down with the typhoid fever; a boy of six was just recovering from the same disease; a girl, a little older, was just recovering from the dysentery, and kept the mother almost constantly trying to allay a distressing cough; another little girl of three years called in plaintive tones for mamma to get her to sleep; while poor, tired, overworked mamma carried about with her a baby of 6 weeks old. Both rooms were filled with the various cups and medicines pertaining to the fever in question. The Dr., who is a good friend of mine, seemed pleased to turn them over to me, and as he gave me directions, I began to feel happy already. The mother's face looked strangely familiar, and I soon found she and I had been schoolmates, 22 years ago. The father was an inventive mechanic, and had just finished and started to work a machine that was earning him good wages; but, alas! there he lay helpless. My great big selfish self began to loom up awfully, and while I asked God to forgive me for the grumbling I had all along been guilty of, I began wondering what my wife would do if she were there. In the first place, my Sunday shoes "squeaked" so that I waked all the children up every time I walked across the floor; and, after trying the sick man's slippers, I found I could go much the stillest in my stocking feet. A friend was with me as an assistant, but, as he, too, had hands to take charge of on the morrow, I persuaded him to lie on the lounge and sleep, while I took care of the sick, calling him whenever I needed him. I deserved no credit for this, for, to my own astonishment, I really enjoyed the work so

that I would rather do it than not. It was after 12. before I could get the poor mother to lie down, and then she lay on the floor, so as to be near the children, and laid the wee babe on the treadle to her sewing machine, to raise him a little from the floor. All night I stepped round among them, in my stocking feet, and, for the first time in my life, made coffee, broth, etc., for the convalescing boy, kept two fires burning without rattling the stoves and things very much more than my wife did, got acquainted with the children and soothed them in their childish wants and troubles, cheered the mother by reviving her faith in God, and tried to give the father a view of the religion that Christ taught while here on earth. Although I only slept 15 minutes at one time, and 30 at another, I felt no disposition at all to sleep when the daylight came, and almost as fresh and able for business as if I had slept in my own bed. Before going away in the morning, the father made the remark that, though I was unused to the work, I had taken hold of things in a strange house, about the handiest of any body they had had there. I tell you, my friends, it wants just the same spirit that the boy had who raised the lettuce heads in the winter, of whom I have told you on another page. Why did I not get dizzy and faint (I did not want a particle of refreshment of any kind, although it was provided for us)? Because God answered my prayer in the starting out, when I undertook to do as he has bid. You may, if you choose, say it was because I took a fancy for the work, because it was a new thing. If God answers our prayers, I do not see that it *matters* just how he does it. I did it all, because I loved the Lord, and when that is our inspiring motive, when we work for the love we bear to him, or for Christ's sake, if you choose, he will always answer our prayers, and all things *shall* work together for good.

Now, suppose I had done all this with a purpose of gaining the applause of men, or that I might put it into these pages, to let you all see how good I am, do you think God would have helped me? Most assuredly he would not, and I speak from practical experience; for, a great many times, something else besides my Savior comes uppermost in my work. When I sat down to write this morning, I had no thought of giving you this little incident, but as my thoughts dwelt on the events, it occurred to me that it was all in answer to my prayer in the meeting last evening. God blessed me, and that family too, and who knows but that this simple story may bless you, and some neighbor near you. Am I worn out this morning, so that my Home Papers are not as good as usual? I do not fear to say that I think it is good, for it has been thus far, at least, God's work and not mine.

Afternoon.—Since I left my type writer, I have had occasion to pass the house, and I called to inquire after my friends of last night. As my thoughts have been much on them, of course, I have been praying for them, and this is what I heard, when I opened the door.

"O Mr. Root, we are all of us ever so much better."

Now this is not all, either; a few minutes after, by accident, I passed the friend who had invited me to go there. Now I am going to make a little confession, even at the risk of injuring myself in his estimation. He has always been a most exemplary Christian, in looking after, and caring for, the sick, and, as he had often talked to me about it, I got a notion that he thought I was not doing my share of this kind of mission work, and I am afraid I felt just a little "edgewise" toward him. I had reasoned thus: He has plenty of time, and knows how, but I am so "awful busy" all the while, and don't know how either; he ought not to think of my doing as he does. Looking back at it now, I am not at all sure that he ever did think about it, but it illustrates how Satan will encourage us in thinking wrongfully about the best friends we have. Well, I passed him as I said, and what a change. I told him I had a very pleasant visit with my friends during the night. Said he,

"I knew you would, for you are just the man for that kind of work."

How pleasant and friendly he seemed to-day. That man is a real, true Christian, if we have any in our town. Why, he looked, to-day, positively handsome; but I presume he is not different from what he has been, all the time. All the difference was in me. Does not this illustrate how Satan hates to see us exhibiting a Christ like spirit toward each other?

The great point I am trying to arrive at by this little story is, that it is not so much what we do as it is the spirit in which we do it.

Let us go back to the point we were discussing last month. If that confession had been made with a view of making a sensation, of attracting attention, of making people stare, by boasting of what a great sinner I had been, God could not have been with me in it. If, on the other hand, it was to warn against such trifling, to let mankind know that the Devil lurks in such things, as well as in the intoxicating cup or in gambling, and to show them that nothing but trouble and ruin can come of it, that it makes one as heartless and unfeeling as the drunkard who strikes his wife down with clenched fist, my purpose was a good one, and my prayers would be answered there just as surely, as they were in my attempts to care for the sick. But it was such a shock on community, &c. My friends, it was a shock on community when I had an old resident of our town arrested for being intoxicated in our streets. I do not know but that more than half of our town's people felt pained to think that I, so long a peaceful and quiet citizen, had gone out of my way, and made so many bitter enemies. The saloon keepers of our town, without doubt, think that religion has made me a worse man than I was before. Because of offending them, shall I stop? In the confession I have made I pained and wounded almost every friend and relative I have. My friends in my native town, in my own church, and all the churches in our town, as well as the skeptics and infidels, were most bitter in their denuncia-

tions. I knew beforehand that this would be so. I had carefully studied the matter over for years, and knew pretty well just what the effect would be, and yet God's voice said to me all the time, "Go on. Do your duty unflinchingly." How do I know it was God's voice, and not the work of the Devil, as the Dr. said? Well, I carefully and prayerfully examined myself as I have told you. I watched eagerly and most closely, to see where that *satisfied* feeling that follows one in doing God's work would lead. When I had decided to destroy the papers at a considerable expense, I did not feel troubled at the expense at all, but I felt unsatisfied, just as I do when I allow the saloon across the way to go on with business, without remonstrating with them. When I decided to go on with it, I felt as I do when on the way to Abbeyville, through a cold rain storm,—tired and cold perhaps, but satisfied, because I am working for others rather than considering my own personal comfort.

My pastor came home. He had had a letter from the Dr., and he asked me to tell him nothing about it, but to allow him to read the part printed, and then to read the Dr.'s letter left with me for him. He read both through, without a remark. At the end, he said he could see but one good point made. That point was in reference to my former partner herself.

"She of course knows of this?"

"Certainly; you can talk with her about it, if you wish."

"Well, aside from that, I say go on, by all means. I do not say this so much because it meets my views, but because I feel that the spirit which guides you is a true one, and that it will always lead you safely."

That no one may think I thoughtlessly and needlessly gave pain to any one, I will remark that he called on her, or she on him, and that friendly relations have always existed between them.

The journal was printed just as I had written it. Of course, I should never have written any such thing for our town's people, and I had long before anticipated the difficulty of making them understand that my bee journal was quite a different thing from one of our county papers.

What I write in these pages is for the thousands who know me only through this bee journal, and who have no acquaintance with the people of my town and vicinity. They, therefore, look upon the people whom I mention as simply individuals or fellow travelers in the abstract; and, when I speak of them to illustrate a point or to help others in the battle with evil, my readers get the moral of the story simply, without dreaming of being prejudiced against the ones whom I have mentioned. Now, our people here at home fail to take this into account. Not a dozen copies of GLEANINGS are ordinarily taken in our town, and less than two dozen in our whole county. Notwithstanding this, when I have given you these little sketches of the progress of the temperance work in our town, the individuals I have pictured (but never named) would have it (when any body was so thoughtless as to *show* them a copy of GLEANINGS) that I had purposely

held them up in derision before all the world. While I know that this was only imaginary, I have felt badly about it, more than once, as the only alternative I have had was to make up my stories, and write fiction. But, as I think the truths of this life are stranger and more wonderful than any fiction, and as I cannot, conscientiously, write fiction, I have kept on giving these life pictures, asking God to take care of the consequences. I feel that this prayer has been answered, and that no one has been harmed in the end.

Well, this March number came out, as you know. I had prayed to be guided in regard to the stir it would probably make in our town, and the course that was pointed out to me seemed to be, to keep on at my work as if nothing had happened, and to mention the matter to no one, unless I was questioned about it, and then to reply briefly and simply, and to be not troubled whatever aspect affairs might take: to answer pleasantly and fully all that might be asked of me, but to take no pains to defend myself, and in no case to be drawn into argument, but to trust God to take care of it all. As I had, in *that* paper, found no fault with any one, and censured none but myself, I did not expect much would be said of it, but I was very greatly mistaken. Our town was alive with excitement and, at one time, almost in a perfect uproar. With a certain class, it seemed as if the English language was totally inadequate to the task of furnishing epithets to express their indignation at my course. The infidel element was in a rage, and many of the Christian people, who did not follow them, were full of grief and sorrow, for a time, as it seemed. Although all these things were freely talked about, for quite a time no one came to me with a word of complaint. Letters soon came in great numbers, but almost all of these were full of good, Christian counsel and encouragement. Quotations from Scripture came in from all sides, which showed in a way I had certainly never seen it before that the Bible was read and appreciated. Occasionally came a letter of remonstrance, but these were so few, I might easily give them all here, if I thought it best. First came letters of cheer and encouragement from women, but soon, from my own sex, more than one of whom confessed that he had been like tempted, as myself. Some had fallen and doubted if religion even could save them. Great numbers said those words would make them better husbands and fathers for the remainder of their lives.

Meanwhile the talk progressed in our town. It was said I must be stopped from such writing by some means; but how? My pastor should be expelled from the church for countenancing such work, and the church would be broken up unless I were expelled. The trouble was, it was myself I had abused and there was no law to meet such a case. Some of the papers suggested tar and feathers. One class would tar and feather me, while another—fathers and mothers—came to me, in great numbers, beseeching me to take their sons and daughters in my employ, and bring them up in accordance with my principles. One of these was a hot headed and avowed infidel. While he got

vehement in denouncing the Bible and religion, he almost insisted that I should take his boy into my employ. I told him if I did I should insist on an observance of the Sabbath and all these things, but he said he didn't care anything about that, if I would only take him on some condition, he cared not what, he would silence all his scruples, and our differences in opinion. He wanted the *fruits* of religion, but ridiculed the means I used to bring about these fruits.

After a few days, a good friend of mine came to tell me that the whole article would probably be put in our principle county paper. I had never dreamed of this. To keep the article within bounds as well as I could in our town, I had, contrary to our usual custom, refused to give sample copies of this month free, and applicants who wanted them evidently for the purposes of gossip and not bee culture had been asked 10c. per copy, the usual retail price. I afterwards learned that, even at this price, they were sold by boys on the street. Although I was greatly pained to learn of its further dissemination in our own town through the weekly paper, on a little reflection, I concluded it was my duty to trust God in the matter, and be not troubled. I told my friend the matter was in God's hands, and the best I could do was to trust him to bring good out of it. The editor of the paper was the one to whom I referred on page 152, of the April number. The paper came out, with a long editorial notice of it, in which, with an ingenuity that none but Satan could devise, as it seemed, the whole was twisted, misrepresented, and misstated. I will just mention one point. I was accused of doing it all as a money speculation, and of sending boys out on the street with them, after having printed several thousands extra. I did not print one extra copy for that month, and I hindered the sale in every way I could consistently, in our own town. When the county paper came out, every body was carrying it about, and a great many, it seemed, followed the editor's version and comments. There had been excitement before, but now the excitement seemed to have risen to white heat. My former virtues were recounted, but religion had ruined me. I was a religious fanatic and had gone crazy.

There was another paper in our town, conducted by a man of known intemperate habits, a frequenter of the saloons. He could not well denounce my course more than the other did, but he had a different way of doing it. The summing up was that I was crazy, and dead in the estimation of every good citizen. My business was gone, and, of course, that was the end of me. I can readily have charity for these brothers, for I well remember years ago, how I hoped that the revival meetings would prove a failure, and Christian people would no more take notice of me, and endanger giving my guilty life publicity. If I were really crazy (or thought to be so), I should not have it in my power to worry the saloon keepers and their customers.

This last named editor, by some means, I know not how, got hold of the article in the January *A. B. J.*, in regard to myself and

the Home Papers, and this, too, was held up before our town's people. As an illustration of how God helps his children over persecutions like these, I would go back for a moment to the time when I first saw this article in the *A. B. J.* It was in the evening, after a hard day's work, about the first of the year. I was just turning out the lights to go home, as my eye caught sight of the wrapper of the familiar and welcome *A. B. J.* I tore off the wrapper, and, glancing through, my eye very soon lighted on that article. I need not tell you that, when I read it through, it fairly wrung my heart with pain, to think that it was within the ingenuity of man, to so twist and subvert that part of my life's work, that I had never dreamed any body could object to. The moment I had finished the last line, I dropped on my knees, feeling as perhaps I never had before, the need of that friend who never fails. I was really driven to him, and as I knelt, I remembered that that was exactly the spot where I had knelt four years before, when I uttered that first prayer, and it was almost the same time of the year. "Come thou, O my Savior, to thy child to-night, and as thou didst lift him up on that memorable night before, and almost hourly during the intervening years, lift him to-night, and help him to bear this new cross, and not to feel unkindly to the brother who did it."

"I will, my child, peace be unto thee," was the answer, almost instantly. My simple prayer was answered so completely, that neither at that time nor at any time since have I ever felt troubled about the matter. Why should I feel troubled about what God has promised to take care of. When Prof. Cook so very kindly took my part in the matter, and placed me and my motives in their true light, I could then see plainly how much better it was for me to keep silent, rather than to try to set it right myself. It seems to me that it was in answer to that prayer that God moved the kind heart of friend Cook to do this.

You may remember that, in the January number of *GLEANINGS*, the burden of the Home Papers was the lines,

"Jesus, I my cross have taken."

Well, all at once, it burst upon me, that God was only schooling me to be able to drink in the joy and peace of the sentiment contained in the second verse. Just notice how wonderfully the words were framed by that poor girl (should I not say *rich* rather?) for my present needs. Read it:

Man may trouble and distress me;
Twilt but drive me to thy breast;
Life with trials hard may press me,
Heaven will bring me sweeter rest.
O! 'Tis not in grief to harm me,
While thy love is left to me;
O! 'Twere not in joy to charm me,
Were that joy unmixt with thee.

Is it strange that I went home through the darkness that night, happier and nearer to my Savior than if those hard lines in the *A. B. J.* had never been printed, and do you not get a glimpse of the wonderful truth in the little text at the opening of this article?

And we know that all things work together for good to them that love God.

Honey Column.

Under this head, will be inserted free of charge, the names of all those having honey to sell, as well as those wanting to buy. Please mention how much, what kind, and prices, as far as possible. The prices quoted in our cities for honey are, at present, too low, to make it worth while to publish them. As a general thing, I would not advise you to send your honey away, to be sold on commission. If near home, where you can look after it, it is often a very good way. By all means, develop your home market. For 25cts., we can furnish little boards to hang up in your doorway, with the words "Honey for Sale" neatly painted. If wanted by mail, 10c. extra for postage. Boards saying "Bees and Queens for Sale," same price.

I HAVE one barrel of basswood and one barrel of clover honey which I will sell for 8c. per lb. here, and throw the barrels in. Will send sample if desired. K. M. BARBOUR.
Alamo, Mich., Sept. 20, 1879.

I have 6,000lb. of light, extracted honey, put up in barrels holding 25 gallons each. I will sell and deliver the same, at rail-road depot, or on board steamboat, at Shreveport, for 7c. per lb., or 75c. per gallon. C. C. MARTIN.
Benton, Bossier Par., La., Sept. 24, 1879.

GOOD FOR LOUISIANA.

Will you please inform me whether the prices you give in Sept. GLEANINGS for extracted honey in Cincinnati can really be had or not? If so, give me the name of a responsible dealer. I have made nine or ten thousand pounds and have engaged only about three thousand (at seven cents), and will be bound to ship somewhere. My honey is light and nice for Louisiana. If I could get eight cents in Cincinnati, it would pay me to ship.

My bees have done moderately well, I suppose, averaging near one hundred pounds to a colony. I had a very large natural swarm on the 11th inst., a hybrid, which was the first one I ever knew in this month. They left their hive (two story) full of honey and brood. C. C. MARTIN.
Benton, La., Sept. 15, 1879.

Our friend, C. F. Muth, is the only one I know of who buys honey in Cincinnati. He is perfectly reliable. I am very much pleased, friend M., to get such a report from the South.

CHICAGO.—Honey—Choice, in single comb boxes, 10@12c. Extracted, 6@8c.

Bees-wax.—Choice, yellow, 20@22c. Darker grades, 12@15c.

NEW YORK.—Honey—Best comb, 11@13c. Extracted, 7@8c.

Bees-wax.—Choice, 25c.

CINCINNATI.—Honey—Best, in single comb boxes, 10@12c. Extracted, 8@10c.

St. LOUIS.—Honey—Scarce and firm. Fair to choice comb, in nice pkgs., 14@16c. Extracted 10@12½c.

Bees-wax.—Prime, steady at 20c.

R. C. GREER & Co.,

117, North Main St., St. Louis.

CALIFORNIA.—Honey—New comb, 12½@15c.; Extracted, 8@10c.

Bees-wax.—Best, 30@31c. For darker colored, 20@22½c.

A COMPLAINT.

THE section of larvæ that you sent me arrived in excellent condition, a part of it being yet in the egg. I suppose that you started it Monday morning; it arrived Tuesday evening, making it 36 hours on the way. I inserted it in a nucleus where I am positive there was no other brood, and after it had remained there a short time, I grafted a few cells, choosing the youngest larvæ. I then

waited until that portion which was yet in the egg had hatched, and grafted more queen cells. I got 18 nice cells built, and was expecting as many nice queens; but when they emerged from the cells they were, I believe, without a single exception, as black as the ace of spades. I thought there must be a slight mistake somewhere, but did not condemn them until the workers from the same comb hatched.

I did not use all the larvæ but left the greater part of it to be matured as workers. I don't think a single one of the workers showed three bands, and nine twelfths of them showed only one; and some showed none at all. Your theory about Italians turning black is rather plausible. I know that hatched bees will turn dark when closely confined, but larvæ will not change; it is an impossibility. It would be just as reasonable to suppose that larvæ from a black queen would hatch yellow bees. You say that the larvæ sent was from an imported queen. I say it was from a hybrid queen. I care not whether she was imported or home bred. I have made a fair statement of the matter and am willing to be qualified to it, and I now appeal to your honor to comment.

LEROY VANKIRK.

Washington, Penn., Sept. 19, 1879.

P. S.—You asked me to send you some of the workers from that larvæ. This I can not do as they were hatched with *other hybrid bees* and I can't pick them out. You might as well depend on *my* judgement, for I know a pure Italian as well as you do *or any other man*. L. V.

The above is published by the especial request of friend V. The larvæ sent him was from our best imported queen, and I think, if he examines the workers more carefully, he will find they have the proper bands, as described in the A B C. Larvæ sent by mail often produces *queens* as dark or darker than the native queens, but their worker bees (if the queens are purely mated) are nice Italians. I have no other explanation to give. Although I have tested great numbers of imported queens, I have never seen one that produced hybrid bees, although I know some would sometimes call them such. They will all stand the test of purity I have given in the A B C, and I cannot guarantee more than this. Yellow bees can be procured from other stock, but not better honey gatherers. I have never seen a *black worker bee* from the brood of an imported queen, and am as much at a loss to explain how such a thing *could be*, as friend V. himself.

SIMPSON HONEY PLANT.

PLEASE let me know when and how to sow the seed. Should this year's seed be sown this fall? If so, would it bloom next year? The plant grows here in the woods. I would like to sow 2 acres of it. JAMES SPENCER.

Woodburn, Ia., Sept. 14, 1879.

I have made a great many experiments in sowing the seed during the past two months, but all I have sowed in the open ground has been almost a failure. A few plants have grown, it is true, but not nearly enough to plant that 4 acre field. One of our girls sowed some in a flower pot, in doors, and nearly every seed grew; she tried again, with some large wood boxes filled with black leaf mold from the woods, and the plants have come up by the thousands. Some of them are now nearly as large as small strawberry plants, and are growing wonderfully. These will blossom next year, without question; but whether those raised next spring will or not, I am unable to say positively. Friend Simpson answers our questions so briefly I hardly understand him.

Just for the fun of it, I will send you one of these

little plants, by mail, for 5c., if you would like to try one, or a small package of seeds from cultivated plants, for the same amount. Our cultivated plants are far ahead of the plants in the woods. If you get plants from the woods, they will give you plenty of blossoms next year. I do not know how well the plants will stand frost, but the roots are very hardy. You can sow the seed as soon as it is gathered.]

PRICES OF HONEY, SEPARATORS AND NO SEPARATORS, PROFITS OF THE BUSINESS, &c.

I HAVE just heard from C. O. Perrine, and he is giving 6 to 6 1/2 c. for extracted clover honey, and 12 to 13 c. for nice clover comb honey, but every comb must be straight so it can be glassed. Now, that is just a little "too thin." If there are people who can afford to pay for glass, &c., they can afford to pay us 2c. per lb. more, so we can pay expenses; but we can't nor won't raise the *best* honey at 6 and 12 c. per lb. This is the only season in 8 years when I have had a good yield of clover honey, and that was 25 lb. comb and 40 lb. extracted to each old colony and their increase. I have worked hard to get this much, and the work is worth about 1-2 of what I get for the crop at 8 and 11 c. My comb honey was built without separators, and I have to take even less than C. O. Perrine offers for combs straight as a board.

By advertising in GLEANINGS, I have sold nearly all my extracted honey at 8c. Most people, and especially those about here, want it if they can get it about as cheap as sorghum; but, as we positively cannot raise it at that price, those who are not willing to pay as much for it as for the best quality of sugar will have to do without it. For my part, I won't raise honey, if it must get any lower. If people keep talking about there being so much money in honey, I shall tell them, if they think so they can have my bees, honey houses, &c., at one half what they cost me.

But what are we to do about the price of honey? Other things are going up, and honey is about 2c. per lb. lower than last year, and, although it is so low, it must be in much nicer shape than 6 years ago, when we got 25c. per lb. gross, in rough boxes. Now it costs us much more to put up comb honey in nice shape, and we get just about one third as much for it.

I don't think the seasons have averaged near so well either for a few years past, so that makes the profits of the apiary much less. We have had such dry, cold weather here that I don't get any golden rod honey, only just enough to induce the bees to breed moderately. Basswood was never so full of bloom as this year, but the weather wasn't favorable.

R. S. BECKTELL.

New Buffalo, Mich., Sept. 18, 1879.

Gently, friend B. The facts you give are important ones, but you do not seem to feel very cheerful about the prospect ahead. As we shall have to sell our honey for what people will give, shall we not face the fact and take it cheerfully? Hard work and small pay is many times better for us than the reverse. Shall we not try to think that God knows best, and be cheerful and happy any way? Business is very dull here, and more than half of my hands are out of employment, but while I am sorry for them, I have been very happy, picking up all the little odds and ends, utilizing every thing that had been carelessly thrown aside, and

coming down to the most strict and careful economy. I know it has been a good thing for me, and I do not know but that it will be a good thing for all of us. Stop the outgoes, and, instead of buying things, raise them on your own ground, or make them yourself, of materials lying about, useless and in the way. Above all, get up early in the morning and work.

OUR CARTOON FOR OCTOBER.



THE BEE KEEPER WHO CANNOT AFFORD TO TAKE A BEE JOURNAL.

IT is the fellow who is trying to climb over the tall picket fence instead of walking through the gate, on a good graveled path, that is like the man who is too poor to take a bee journal. He is not only choosing a much more difficult and laborious path than the beaten track, but he usually tears and soils his clothes, runs the risk of breaking his limbs, and is, even then, far behind the well informed man who saves his time and strength until it is really needed. Those who are too poor to take a journal have their honey stored in old boxes, and sell it for a much lower price; have their bees in old boxes too, and have to sell them for about half price, if they happen to winter them during a time of scarcity. Their wax, honey, and bees are seldom sold at the best time and for the best prices; and they are invariably the ones who hand over or send their money to such as Mitchell and Mrs. Cotton. The strings of complaints we have, month after month, from those who have lost their money on "division boards" and "valuable recipes," are from persons who are not subscribers. Whenever I get money from a beginner, for something which I am sure, from the tone of the letter, he or she does not need, I invariably find toward the close, that they "regret they cannot afford to take a bee journal." Although the money they send, or a small part of it, would be far better invested in getting the information they need, I dare not disobey orders, but have to leave them climbing over high, dangerous fences, instead of taking the well beaten gravel path.

The price of those beautiful honey labels, in colors, already gummed, has been reduced from \$3.25 per 1000 to only \$2.15, and they are nicer than ever before.

JUST BEFORE GOING TO PRESS.

[The contents of this department are supposed to be given in an informal way, just before the last form is placed in the press. You can imagine myself, hat in one hand (said hat being covered with sawdust, honey, bees wax, printers ink, etc.), and the other hand on the door knob, just ready to bid you good day until next month, giving you a summary of the last items of interest in the way of new discoveries, etc. The press man will probably cut my talk suddenly short, by telling me he cannot possibly squeeze in another single word, saying nothing about line or lines.]

THE following is from the *Cleveland Evening News*, of Sept. 29th:

ANOTHER CAPTURE.

CAPTAIN HENRY AND ASSISTANTS LAY HOLD OF ANOTHER DISHONEST POSTAL CLERK—JOSEPH F. WARNER THE UNFORTUNATE.

For a long time there have been complaints about letters containing money being rifled in the mails passing over several roads from this city. Months ago Captain C. E. Henry, of the Postal Detective Service and assistants took hold of this matter, and after a great deal of labor and trouble succeeded in locating the losses in the Grafton post office. Several tests were put in operation there, and after much waiting and meditation suspicions were fixed upon Joseph F. Warner, a clerk in that office. To test the young man eight letters were deposited in the mails Sunday which would pass through Grafton during that day and evening and early Monday morning. Soon after these letters had been handled they were called for by Captain Henry, when it was discovered they had been opened and the money placed in each one taken. As Warner was the only one who had had a chance to handle them he was cornered and accused. At first he denied any knowledge of the transaction but soon confessed. He says he had taken about \$75. and began operations in June last.

Monday forenoon Captain Henry arrived in the city with Warner, who was taken before United States Commissioner White, when he waived an examination and was bound over in the sum of \$1,000.

Warner is a single man and about twenty-three years old. He has been employed in the Grafton office for about one year, and says he has been boarding himself on \$1.25 per week. He has earned \$1 per day by working in the post office and a Grafton flouring mill.

Two of the heaviest losers are A. I. Root, of Medina, Ohio, a Bee dealer, and J. R. Holcomb, of Mallet Creek Telephone Manufactory. Sunday's letters were addressed to these gentlemen.

Warner has written a letter to Mr. Root, of which the following is a copy:

GRAFTON, O., September 23th, 1879.

A. I. Root;

Dear Sir:—I must write to you and confess to you that I have done wrong and ask your forgiveness. I will try and do all I can to mend the wrong I have done to you. I am willing to pay you all I have taken from you; I was placed under such temptation that I let the evil one rule over me, but it is too late. I can not recall what I have done. If I could, I would with all my heart. In an evil moment I was tempted to take your property that belonged to you, but God knows, I repent with all my heart. I plead you to come and see me, and deal leniently if you can. I am ready to make amends in any way you

want me to, and I want to lead a Christian life. I will do anything for you you may ask me to; only spare me the disgrace of undergoing the punishment of the law. I beg and entreat you to save me; you have me in your power; do with me what you think best and I will bear it patiently and I will pay you all I have taken from you, and I beg of you to come and see me in Cleveland. With this I remain at your hands,
JOSEPH F. WARNER.

ALIGHTING BUSHES.

ONE of the minor points, on which information should be furnished in a bee-keepers' handbook, is what trees or shrubs to plant for swarms to alight on, when an apiary is started on a plot of ground which is clear or nearly so. What sort of a plan would it be for the class to send up their experience and have it boiled down for the A B C?

Lofty trees, which bees have a liking for, are a serious nuisance. One very tall and particularly prangly and inaccessible apple tree has been a decided "thorn in the flesh" to the writer. On the other hand, the incipient bee-man may indulge in needless fears about tall trees that are never likely to do him any harm. My father, when locating his first bees, twenty odd years ago, thought ruefully of his row of tall maples so near where it seemed necessary to set his hives. Yet, of all the multitude of swarms that have issued since, only two or three have ever chosen the maple trees. The apiary has been in three or four different spots since it was begun, so many years ago; and, as there is the usual variety of trees and shrubs scattered about the premises, my chance to observe the preference of bees in lighting has been a very favorable one. At present, one would say that a certain row of young chestnut trees was the best alighting ground. In point of fact, almost every swarm that moves off in that direction passes over them and chooses something beyond. Just one swarm, if I mistake not, is all that has yet settled upon them. On the opposite side of the apiary, still nearer to the hives than the chestnuts are, stand some little plum trees and a snowball bush. On these, the bees light freely, very rarely going over them to anything beyond. The snowball especially is a surprising bee catcher. There used to be two of these bushes. Both bore the same character. During all the years that the hives have stood near them they have caught a large percentage of all the swarms issuing. To keep swarms from going to distant and difficult trees, the snowball would seem to be preeminently the bush to plant, if it was only healthy and easily raised. It was a healthy shrub twenty years ago, but, of late, aphides infest it so that young slips make but little growth, and old bushes barely hold their own from year to year. Of the trees that are readily obtained and easily grown, perhaps the old-fashioned sour cherry is the most suitable for the purpose. Can any one name a plant which is equally or more acceptable to the bees which has the additional advantage of not growing quite so tall as the cherry? The most remarkable example of avoidance seems to be the way the bees treat the lilac bushes. We have plenty of big ones, favorably located, but, with rarely if ever an exception, swarms avoid them utterly. I should be pleased to learn whether this is the case elsewhere.

The location of the different trees in the five classes given below is not made as a finality, but "just to start the thing." Bees are so "curious," and circumstances are so queer, that it would be strange if experiences elsewhere should not differ point blank concerning some of these trees. Many other

names ought to be inserted to make the list a serviceable one.

Class 1. Plants avoided almost entirely. Lilac, balsam fir.

Class 2. Plants evidently regarded with aversion. Maple, chestnut.

Class 3. Plants regarded without aversion. Oak, peach, plum, grape, currant.

Class 4. Plants regarded with evident preference. Apple, pear, sunflower.

Class 5. Plants very decidedly preferred. Snowball, cherry.

By making a proper selection, and allowing nothing tall "around the shanty," the work of hiving swarms might be very much lessened.

Bodley, O.

E. E. HASTY.

DEPOSITORY OF

Blasted Hopes.

Or Letters from Those Who Have Made Bee Culture a Failure.

FRIEND NOVICE:—I am "busted"—that's the word. I have waited all summer for the weather to get so that the flowers would yield honey, but—no go. My bees commenced increasing, in the spring, at the wrong end, and have kept at it pretty faithfully all summer. What I have left are weak, and are getting honey from the Spanish needle, very slowly. I have only taken 20lb. so far; so you see that I am not getting very rich this year. Well, that is not the worst of it; you have run me in debt again by sending finished instead of unfinished extractor gearing. Now you will have to wait for your pay, till I sell that 20lb. of honey. H. SCOVELL.

Never mind, friend S., I will wait. But, hold on; here is a P. S. to the letter. It is astonishing how soon our friends get out of "blasted hopes," if they do get there occasionally.

P. S.—Our county fair begins the 29th. I am going to exhibit an apiary, hexagonal, of 36 hives; inside circle, 6 chaff hives; next row, 12, two story Simplicity; and next, my 1½ story Simplicity; the whole to be enclosed with the new visible wire fence. Besides, I will have the various implements used in the apiary, honey in crates, observatory hive, &c. Columbus, Kan., Sept. 10, 1879. H. SCOVELL.

Do you suppose any body at the fair will think of friend S. as a "blasted hoper?"

Now, Mr. R., I much appreciate your GLEANINGS and would like it very much, but I broke down dead poor, last spring. I started last fall, to winter 52 colonies of bees, and came out this spring, with only two hives that had living bees in them, and less than three tea-cupfuls in the two. Now, I have five good swarms so I can't give up yet.

Cardiff, N. Y., Sept. 12, '79.

EDMUND ESTEY.

Be of good cheer, friend E.; we will keep the Journal going for a while longer, at least, to an old subscriber like yourself.

Bees are starving, and have commenced swarming out. They will have to be fed immediately. We have no surplus honey this year, to speak of.

Saxon, Ill., Sept. 5, 1879.

J. A. MAXFIELD.

Last year, from our 100 colonies, we got 4,000lb. of honey surplus; this year, with our 125 colonies, we get *nothing*.

Woodburn, Ia., Sept. 14, 1879.

JAMES SPENCER.

SINCE our editorial on page 408, in regard to shipping queens, we have had reports from 1-2 doz. sent to Indian Territory, which were on the road 21 days. Those sent in the *large bottle cages* went in far the best order. Now I will tell you what we will do for long distances. We will give them candy, water, and a good slice of sealed honey besides, in every cage. The 1-2 doz. to Indian Territory went all right except one; but I want them *all* to go all right *anywhere*.

At the conclusion of the article entitled "Troubles" in the July No., I recorded a prayer, that the brother who was robbing our mails might be brought to light and justice. You will see by the following telegram, from the chief of the detective force of the postal department, that at least a part of my prayer has been answered:

Grafton, O., Sept. 29, 1879.

Come to Cleveland. We have the thief solid.

C. E. HENRY, Special Agt. P. O. D.

I leave just as our last sheet goes to press, and may God grant that my efforts may be as successful, in inducing him to think of "laying up treasures" for the world to come, as they have with the boys I have met in our own jail.

MORE ABOUT MITCHELL.

[The following belongs in the Humbug and Swindle Dept., but was crowded out.]

About 3 months ago, I ordered, from a certain Mitchell, 3 bee queens. I inclosed with the order \$10.00. The address given to me was Nelson Mitchell, B. K., Sandusky City, Ohio. I never received an answer. As you live in the same state I would be very much obliged to you, if you could give me his address. REV. JOHN TEITEN.

Victoria, Tex., Aug. 23, 1879.

The address was correct, friend T. If you look in the Humbug and Swindle Department, you will see why you don't hear from him.

Mitchell's man is scouring over this county, selling rights, at \$5.00, to use the adjustable hive.

GEO. W. HOUSEL.

Bainbridge, Ind., July, 1879.

Conventions.

Notices of Conventions, condensed so as to occupy not over two lines, will be inserted free of charge.

CONVENTION DIRECTORY.

TIME AND PLACE OF MEETING.

1879.

Oct. 7.—Central Kentucky, at Lexington, Ky.

7.—Albany County, N. Y., at Albany, N. Y.

15.—Central Michigan, at Lansing, Mich.

18.—North Ky., at Alexandria, Ky.

21.—National Convention, at Chicago, Ill.

30, 31.—Western Illinois and Eastern Iowa, at Burlington, Iowa.

Nov. 10.—Lancaster Co., Pa., at Lancaster.

1880.

Jan. 13.—North Western Ill., and South Western

Wis., annual, at Davis, Ill.

Feb. 11.—North Eastern, at Utica, N. Y.

GLEANINGS AS AN ADVERTISING MEDIUM.

It pays to advertise in GLEANINGS. I sold all my hives and combs, and had orders for double the amount.

Toledo, O., Sept. 8, 1879.

A. FAHNESTOC.

Will you please send me a copy of GLEANINGS for a customer of mine. I find the GLEANINGS one of the best advertising mediums I have tried, and think it has paid me better than any I have used.

Catskill, N. Y. July 28, '79.

E. H. WYNKOOP.

BEEKEEPERS! Send 5c to A. J. King & Co., 61 Hudson St., New York, for a copy of their Journal, and Price List of Extractors, Smokers, etc., etc. *Grand Inducements to Live Agents.* 4tf

I WILL sell, this fall, 100 stands of Black Bees, at \$2.50 per stand. They are in Langstroth, American, and International hives, which are well painted. ROBT T. QUINN, Shellsburg, Benton Co., Ia.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Twenty-First Edition Circular and Price List, mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of postage required.

To Canada, *merchandise* by mail is limited to 8½ oz., and nothing can be sent for less than 10 cents.

	A B C of Bee Culture, Five Parts complete in one, paper cover.....	1 00
	The same, neatly bound in cloth.....	1 25
	Single Parts, in paper, each.....	25
15	Alighting Board, detachable (See A B C) \$	10
	Alsike Clover. See seeds.	
	Balances, spring, for suspended hive (60 lbs.)	8 00
	Barrels for honey.....	2 50
	" waxed and painted.....	3 50
	Basket for broken combs to be hung in the Extractor.....	25
	Basswood Trees for planting. See price list.	
	Bees, per colony, from \$7 to \$16. See price list.	
10	Bee-Hunting Box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS.....	50, 60, 75
10	Blocks, iron, for metal cornered frame making.....	15
	Buckwheat. See seeds.	
10	Burlap for covering bees, 40 in. wide, per yd	10
	Buzz-Saw, foot-power, complete.....	35 00
	Buzz-Saws, extra, 85c, to \$3.50. See price list.	
60	Buzz-Saw mandrel and boxes complete for 6 inch saws (no saws included).....	5 00
	The same for 7 and 8 in. saws (not mailable)	7 00
3	Cages for queens, provisioned (See price list)	10
30	" per doz.....	1 00
20	Candy for bees, can be fed at any season, per lb.....	07
	Cans for shipping extracted honey (See Honey), from 25c to \$1.00.	
0	Cards, queen registering, per doz.....	06
0	" per 100.....	40
60	Chaff Cushions for wintering (See A B C) ..	30
9	" without the chaff.....	15
	Chaff Hive (See Hives).....	5 00
2	Cheese cloth, for strainers, per yard.....	06
	Clamps for making section boxes.....	75
10	Clasps for transferring, package of 100.....	25
	Climbers for Bee-Hunting.....	2 50
	Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles.....	1 50
	Comb Foundation Machines complete \$22 to 100 00	
10	Comb Holder to put on edge of hive.....	25
	Comb in metal cornered frames, complete	25
20	Corners, metal, per 100.....	50
20	" top only, per 100.....	60
15	" bottom, per 100.....	40
	Corners, Machinery complete for making \$250 00	
	Crate for shipping comb honey. See Hives.	
40	Division Boards of cloth and chaff.....	20
12	Duck, for covering frames and for feeders, 29 inches wide, per yd.....	20
15	Enameled Cloth, bees seldom bite or propolize it, per yard, 45 inches wide, 20c. By the piece (12 yards).....	18
	Extractors, according to size of frame, \$6 50 to 10 00.	
	" Inside and gearing, including Honey-gate.....	5 00
	" Hoops to go around the top.....	50
	" per doz.....	5 00
5	Feeder, Simplicity (See price list) 1 pint.....	05
7	Feeders, 1 quart, tin.....	10
4	The same, half size.....	05
25	The same, 6 qts, to be used in upper story	50
	Feeders, open air.....	25
2	Files for small circular rip saws, new and valuable, 20c; per doz, by express.....	2 00
	" The same, large size, double above prices.	
	" 3 cornered, for cross-cut saws, 10c; doz Foundation. See Comb Foundation.	1 00
60	Fountain Pump, or Swarm Arrestor.....	8 50
5	Frames with sample Rabbet and Clasps...	10

18	Galvanized Iron Wire for grapevine trellises per lb. (about 100 feet).....	20
25	Gates for Extractors tinned for soldering..	50
	Gauge for planing lumber, brass.....	50
	" making hives (See Hives).....	50
50	Gearing for Extractor with supporting arm Glass. See price list.	1 25
0	GLEANINGS, per year.....	1 00
	For prices of back vols, see price list.	
	Gloves. See Rubber Gloves.	
	Grape Sugar for feeding bees. See price list.	
	Grape vines for shading hives. See price list.	
	Hammers and nails. See price list.	
	Hives from 50c to \$6 25. See price list.	
	Honey. See price list.	
	" Plants. See seeds.	
0	Honey Knives, straight or curved blade...	1 00
	" " ½ doz.....	5 00
	" " ½ doz by Express.....	4 75
	Jars for shipping extracted honey. See Honey.	
	Labels for honey, from 25 to 50c per 100; for particulars see price list.	
	Lamp Nursery, for hatching queen cells...	5 00
0	Larve, for queen rearing, from June to Sept.....	25
15	Leather for smoker bellows, per side.....	50
0	Lithograph of the Hexagonal Apiary.....	25
0	Magnifying Glass, pocket.....	50
0	" Double lens, brass, on three feet.....	75
0	Medley of Bee-Keepers' Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0	Prepared objects for above, such as bee's wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard.....	10
	Nails. See Hammers and nails.	
10	Opera Glasses for Bee-Hunting.....	5 00
18	Paraffine, for waxing barrels, per lb.....	20
0	Photo of House Apiary and improvements Planes and Planers. See price list.	25
15	Pruning saws for taking down swarms, 75 and 85	
0	Queens, 25c to \$6 00. See price list.	
1	Rabbits, metal, per foot.....	02
0	Rubber Gloves, \$1.50 and \$1.75. See price list.	
	Rubber Stamps, \$1.50 to 3.00. See price list.	
0	Rules. (See Pocket Rules) 12 and 20c.	
10	Salicylic acid, for foul brood, per oz.....	50
	Saw Set for Circular Saws.....	75
	Saws. See Circular Saws.	
	Scales for weighing honey, etc. See price list.	
30	Scissors, for clipping queen's wings.....	40
0	Screw Drivers, all metal and wrench combined 4½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws.	
6	Section Boxes, fancy, hearts, stars, crosses, &c., each.....	05
	Section Honey Box, a sample with strip of fdn. and printed instructions.....	05
	Section Boxes in the flat by the quantity, \$6 00 per thousand and upwards, according to size; for particulars, see price list.	
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive (See price list)	10

SEEDS OF HONEY PLANTS.

18	Seed, Alsike Clover, raised near us, per lb..	30
18	" Catalp, good seed, per oz. 10c; per lb.	1 00
0	" Chinese Mustard, per oz.....	15
18	" Mellilot, or Sweet Clover, per lb.....	35
18	" White Dutch Clover, per lb.....	35
18	" Motherwort, per oz. 10c; per lb.....	1 00
18	" Mignonette, per lb. (20c per oz).....	1 40
18	" Simpson Honey Plant, per oz.....	50
18	" Silver Hull Buckwheat, per lb.....	10
	" " peck, by Express	75
18	" Common " per peck.....	50
18	" Summer Rape. Sow in June and July, per lb.....	15
18	" Spider plant, per oz.....	25

A small package of any of the above seeds will be sent for 5 cents.

	Separators, tin, for section boxes. See Section Boxes.	
5	Sheets of Enameled Cloth to keep the bees from soiling or eating the cushions...	10
	Shipping Cases for 48 section frames of honey.....	60
	The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c.	
1	Slate Tablets to hang on hives.....	01

SMOKERS.

5	Smoker, Quimby's (to Canada 15c extra)	1 50 & 1 75
	" Doolittle's, to be held in the mouth	25
25	" Bingham's	\$1 00; 1 50; 1 75
	" OUR OWN, see illustration in price list	75
00	Soldering Implements	1 00
	Swarming Box	75
2	Tacks, tinned, per paper, (three sizes)	05
	For larger quantities see Hammers and nails.	
5	Thermometers	25
10	Transferring clasp, package of 100	25
	Tin, see price list.	
0	Veils, Bee, with face of Brussels net, (silk)	75
	Thesame, all of grenadine (almost as good)	50
	Veils, material for, grenadine, much stronger than tarlatan, 21 inches in width, per yard	20
	Brussels Net, for face of veil, 29 inches in width, per yard	1 50
	Wax Extractor	3 50
	Copper bottomed boiler for above	1 50
5	Wire cloth, for Extractors, tinned, per square foot	10
2	Wire cloth, for queen cages	10
	Above is tinned, and meshes are 5 and 18 to the inch respectively	
3	Wire cloth, painted, for shipping bees, 14 mesh to the inch, per square foot	05
	Wire for grape vine trellises. See Galvanized iron wire	

All goods delivered on board the cars here at prices named.
A. I. ROOT, Medina, Ohio.

Names of responsible parties will be inserted in either of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per year.

\$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent before July 1st. If wanted sooner, see rates in price list.

*E. W. Hale, Wirt C. H. W. Va.	1-12
*A. I. Root, Medina, Ohio.	
*H. H. Brown, Light Street, Columbia Co., Pa.	7-3tf
*E. M. Hayhurst, Kansas City, Mo.	1-12
*J. M. C. Taylor, Lewiston, Fred. Co., Md.	1-12
*Paul L. Viallon, Bayou Goula, La.	8tf
*J. Oatman & Sons, Dundee, Kane Co., Ill.	2-1
Miller & Hollam, Kewaskum, Wash Co., Wis.	4-4
*J. T. Wilson, Mortonsville, Woodford Co. Ky	4-4
J. L. Bowers, Berryville, Clarke Co., Va.	7-12
*King & White, New London, O.	8tf

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.	
H. Scovell, Columbus, Cherokee Co., Kans.	4-3
P. L. Viallon, Bayou Goula, Iberville Par., La.	9tf

BEAUTIFUL FERNS.—Exquisite specimens of Ferns from Southern California will be sent to any address for one cent each, except Golden Ferns, which are four cents each. Bouquets of Ferns, 25c and 50c each. Elegant Crosses, \$2.00 each. Free by mail. Address RUFUS MORGAN, Bernardo, San Diego Co., Cal.

NOW IS THE TIME TO PROVIDE

CHAFF HIVES

FOR YOUR BEES TO WINTER IN.

They not only pay their cost almost every winter, but they pay just as well for summer use. See what a friend writes on a postal.

Mr. Root:—What is your price for chaff hives, already filled with boxes, such as Wm. T. Seal, of Chadd's Ford, got of you. Send me price list of hives, and price of 50 chaff hives. *Bees have done well on'y in this kind of hive this summer, on account of cold. It was too cold, in other hives, to stay nights in boxes. I want the frames to hold the one lb. boxes.*
J. & J. T. WILLIAMSON.

Dilworthtown, Chester Co., Penn., Aug. 24, '79.

For 50 chaff hives or more, ordered during this present month, every thing in the flat, including nails and tin roof, I will make the price \$1.30 each. This is for the hive for winter.

For prices of the inside work (which you will not need until another season), also for prices of hives set up and painted, and for hives in lots less than 50, see price list.

A. I. ROOT, Medina, Ohio.

GLEANINGS AS AN ADVERTISING MEDIUM.

It pays to advertise in GLEANINGS. I sold all my hives and combs, and had orders for double the amount.

A. FAHNESTOCK.

Toledo, O., Sept. 8, 1879.

Will you please send me a copy of GLEANINGS for a customer of mine. I find the GLEANINGS one of the best advertising mediums I have tried, and think it has paid me better than any I have used.

Catskill, N. Y., July 28, '79. E. H. WYNKOOP.

NOTICES OF THE A B C.

A B C received in good order. All I have to say is that it is the best book on the subject I have ever had the pleasure of reading.

O. A. HOAG.

West Union, Mo., Aug. 33, 1879.

If I could not get another "A B C of Bee Culture," I would not take \$10. for mine. It is the triple rectified, double distilled essence of bee-keeping, boiled down.

JAS. A. TAYLOR.

Austin, Texas, Oct. 24, 1879.

Hope the new shop will be as great a success as the A B C has been; for I consider it of more benefit to persons going into the business than anything yet published.

R. N. MCINTYRE.

Daytona, Fla., Dec. 23, 1878.

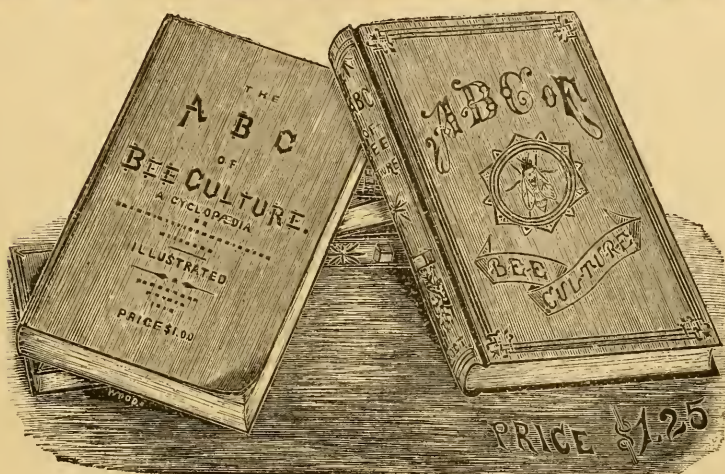
On the stand at my right hand, is the "A B C of Bee Culture," which cost us \$1.00; and to-day we would not take five dollars for it, and do without a book of the same kind.

J. F. RUNSTON.

Spencer, W. Va.

A B C OF BEE CULTURE. By A. I. Root. Published by the author at Medina, Ohio, in five parts, at 25 cents each, or bound in one volume in paper \$1.00; in cloth \$1.25. After a very critical examination we are free to say that this is the only work that ever came under our notice which is so clear and plain that not only any boy or girl, but even an old man or woman, with this book and a hive of bees, can learn modern bee culture and make a fair paying business the first season. It is right up to date and every one who has or who contemplates having bees should have the work.—*Farm and Fireside.*

THE A B C of BEE CULTURE.



FOR several years, it has been my ambition to be able to write a book on bee culture, so clear and plain that not only any boy or girl, but even an old man or woman, with the book and a hive of bees, could learn modern bee culture, and make a fair, paying business, *even the first season*. This is a great undertaking, I grant; and it will require some one with far greater wisdom than mine, to do it the first time trying. After watching beginners, and answering their questions almost constantly, for years, I came to the conclusion, that the only way to do it was to "cut and try," as carpenters say, when they can't get the exact dimensions of the article they wish to make.

To cut and try on the A B C book, I have invested over \$2,000 in type, chases, etc., sufficient to keep my whole book standing constantly in type, that can be changed at a moment's notice. The books are printed only as fast as wanted, and just as soon as I see I have omitted anything, or have made any mistake, the correction is made before any more books are sent out. To show you how it works, and how it succeeds, I will give you an illustration.

A beginner writes to know if it is of any use to keep a queen, after she is eighteen days old and does not lay. Now I know very well that a queen should lay when from ten days to two weeks old; and also, that they will sometimes not commence until they are three weeks old, and then make good queens. Now, although I directed that they should be tossed up in the air, to see if their wings were good, when they did not lay at two weeks of age, I did not say, if their wings proved to be good, how long we should keep them. If I could spare the time of the colony, I would keep a good looking queen that could fly well, until she is 25 days old; if crowded for a place to put cells, I would kill all that do not lay at 18 or 20 days old.

I have just put the above in the A B C, and that is just the way I am going to keep doing. You see, you beginners are, ultimately, to build up the book.

The book, as it is now, contains about 275 pages and about 175 engravings. It is furnished complete in one, or in 5 different parts. The contents and prices are as follows:

Part First, will tell you all about the latest improvements in securing and Marketing Honey, the new 1 lb. Section Honey Boxes, making Artificial Honey Comb, Candy for Bees, Bee Hunting, Artificial Swarming, Bee Moth, &c., &c.

Part Second, tells all about Hive Making, Diseases of Bees, Drones, How to Make an Extractor, Extracted Honey, Feeding and Feeders, Foul Brood, etc, etc.

Part Third, tells all about Honey Comb, Honey Dew, Hybrids, Italianizing, King Birds, The Locust Tree, Moving Bees, The Lamp Nursery, Mignonnette, Milkweed, Motherwort, Mustard, Nucleus, Pollen, Propolis, and Queens.

Part Fourth tells all about Rape, Raspberry, Hatan, Robbing, Rocky Mountain Bee Plant, Sage, Smokers, including instructions for making with illustrations, Soldering, Sunflower, Stings, Sumac, Spider Flower, Sunflower, Swarming, Teasel, Toads, Transferring, and Turnip.

Part Fifth tells about Unting Bees, Veils, Ventilation, Vinegar, Wax, Water for Bees, Whitewood, and Wintering. It also includes a Glossary of Terms and Abbreviations used in Bee Culture.

All are Profusely Illustrated with Engravings.

Nothing Patented. Either one will be mailed for 25c; ½ doz., \$1.25; 1 doz., \$2.25; 40, \$6.00.

The five parts bound in one, in paper, mailed, for \$1.00. At wholesale, same price as GLEANINGS, with which it may be clubbed. One copy, \$1.00; three copies, \$2.50; five copies, \$3.75; ten copies, \$6.00.

The same neatly bound in cloth, with the covers neatly embellished in embossing and gold, one copy, \$1.25; three copies, \$3.25; five copies, \$5.00; ten copies, \$8.50. If ordered by freight or Express, the postage may be deducted, which will be 3c on each 25c book, 10c on the complete book in paper, and 12c each, on the complete book in cloth.

A. I. ROOT, Medina, O.

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THE postage on GLEANINGS to foreign countries will hereafter be 18c. per year, instead of 24c. Our friends in other countries will please add this amount to the usual rates.

ON account of the advance in price of grape sugar, the grape sugar candy, for bees, will be 8c. per lb., or 40c. per tray of 4½ lb., instead of the prices given last month. I sincerely hope this will be the last advance.

BURLAP makes very good chaff cushions, except that the fine dust sifts out when it is handled. However, as it is more porous, as well as cheaper, than the Indian Head, we have decided to make a lot, for our own use, of burlap.

THE thief who has been robbing our mails promised to restore all the money, and to become a Christian, if we would keep him out of the penitentiary. I think he will make a much better Christian to go to the penitentiary, and if he cannot become one and go there, I do not believe he would if released. "I came not to send peace, but a sword."—Math. X. 34.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VII.

NOVEMBER 1, 1879.

No. 11.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.

TERMS: \$1.00 Per Annum in Advance; 3 Copies for \$2.50; 5 for \$3.75; 10 or more, 60c. each. Single Number, 10c.

Established in 1873.

SCRAPS AND SKETCHES. NO. 11.

A FEW BUZZ-SAW SCRAPS.

TO the many inquiring friends" who would "like to know a little more about that home made buzz saw that was described in the Nov. No. of GLEANINGS for 1878," I would say that there remains but little more to tell; the following "scraps" are all that I can "think of."

Some who have attempted the construction of foot-power saws have failed; one man says that it would require the strength of Sampson to saw half inch stuff with the saw that he made. In the construction of foot-power machinery, one idea should always be kept in view; that is, to have everything run lightly and easily. If it takes all your strength to run the machinery, there is no power left with which to do the work.

Be sure and have everything made *just right*. While making my saw, I was often tempted to say: "There, I guess that will do; the bolts or screws will bring that into shape." But I always resisted all such temptations, and never left any piece or part until it was *just right*.

The band wheel was so large, and so near the pulley on the saw mandrel, that the belt touched only a small part of the surface of the pulley; consequently, the belt had to be run so tight, to prevent it from slipping, as to cause considerable friction. To remedy this, I made a small tightener, which acted by means of a weight; this caused the belt to wrap farther around the pulley, and enabled me to run the saw with the belt quite loose. The result was that the "machine" ran much easier. If your belt will slip, put on *just a little* molasses.

Not only keep your saws *sharp*, but keep them *"jointed"*, so that the teeth will all be of a length, and every tooth will cut.

I have made hundreds of hives and thousands of section boxes, with my saw, and I like it better now than I did when I first made it.

You need not pay 75c. apiece for clamps with which to make section boxes. Make some wooden ones; and for screws, buy some bolts at the hardware, and get the heads pounded down flat at the blacksmith shop, so that you can turn them with your fingers. Of course, the nuts are to be embedded in the wood at one end of the clamps.

I have my saw "rigged" for dovetailing according to the plan given in the March No. of GLEANINGS. I use the rip saw, set wabbling, and it works tip top.
Rogersville, Mich. W. Z. HUTCHINSON.

HOW AN A B C SCHOLAR MANAGED.

PERHAPS a report from one of your A B C scholars from this section of Minnesota may be of interest to some of your class. In the first place, I will state that I live on the prairie, and have no maple or basswood. There are quite a number of farmers in this county, who keep from two to fifty colonies of bees, but none who make bee-keeping a business, or raise queens for sale. But very few use any of the modern improvements that are now considered so necessary for the successful management of an apiary.

One year ago last May, I received two colonies of black bees in movable frame hives. I put them on their stands, supposing I had done all that was necessary, except to supply hives for the increase. I knew absolutely nothing about them. A child was as rich in knowledge as to their wants and habits as I was. I remained in my ignorance until about August. In fact, I did not get much interested in them until the honey harvest was over, which was about Sept. 15th, 1878. I subscribed for GLEANINGS and the A. B. J., and sent for Prof. Cook's "Manual" and "Quinby's Mysteries in Bee Keeping," and, it is needless for me to state to those who are interested in the "blessed bee" that I have been in perfect bliss ever since, so far as the bee question is concerned.

In 1878, my two colonies increased to five, and gave me considerable surplus honey from golden rod. In the fall, I took three colonies on a debt, in old fashioned box hives. With care and close attention, I succeeded in wintering and springing them through in good shape, without any feeding, although it was a bad winter, even in Minnesota, in some localities. As early in the spring as possible, I successfully transferred the three colonies in box hives to my movable frame hives.

HOW TO ITALIANIZE AN APIARY.

I also bought of Hon. C. F. Greening, Grand Meadow, Minn., a nice, large colony of Italians, which were received on the 19th of April. I bought this colony for the purpose of Italianizing my eight colonies. I thought of sending to GLEANINGS for elght, dollar queens; but, finally, after considering the matter all winter, I concluded to buy a colony and raise my own queens, believing the experience would be worth something. It seemed to me, at the time, like quite an undertaking. I did not commence operations very early, as the spring was cold and wet, but I raised, and introduced to my black colonies, eight Italian queens.

SENDING OFF FOR DRONES.

I kept the black drones beheaded, not allowing one to hatch, and there were no other blacks within four miles. A short time before I wanted drones for my young queens, I found, upon a careful and thorough examination, that I had no drones. I immediately went to Grand Meadow, and got a card of drone brood that had already commenced to hatch, from one of Mr. Greening's best queens. I inserted the card among my Italians, after daubing them and the Italians *well* with honey. My neighbors laughed at me, but it was a success, and I have today fourteen, nice, strong colonies of Italians, and a little surplus honey. I raised all my queens. The season has been *very dry*, and there has been but little increase and but little honey gathered, so far as I know.

I have not grown as fast as some of your A B C scholars, but, taking every thing into consideration, I feel satisfied. I have not given a detailed account of my operations, but if there is one in the class who would like it, I will give the information at any time.

I am pretty well satisfied of some things. In raising queens, I shall start my queen cells in good, strong colonies. I shall also be as particular about my drones as I am about the queens. I shall never divide without having young, laying queens to introduce. I shall keep extra queens on hand. I intend that a colony shall never be without a queen longer than it takes to introduce one. Keep them *strong all the time*. Handle the little fellows *carefully and gently and know* (don't guess) their condition and wants at all times of the year.

Wells, Faribault Co., Minn.

J. P. WEST.

The "Growlery."

[This department is to be kept for the benefit of those who are dissatisfied; and when anything is amiss, I hope you will "talk right out." As a rule we will omit names and addresses, to avoid being too personal.]

IMPORTED QUEENS AND THEIR BEES NOT, AS A RULE, BEING HANDSOME.

I GIVE the following letters, because there are so many dissatisfied with their imported queens, and because it seems so impossible to have it well understood that the queens of Italy are not yellow, as a rule, nor are their worker bees as yellow as the most of the Italians from the dollar queens.

Enclosed, please send \$5.00, for which please send me one pure, imported, Italian queen bee, not over one year old, a good honey gatherer, docile, and a prolific breeder. In fact, I want a first class bee in every particular. If you have not got what I want, please return the money at my expense. If the enclosed amount is not sufficient to pay for what I want, or is less than the price for what I want, I will remit balance on receipt of bill.

Sherwood, O., July 23, 1879.

J. G. K.

After reading the above, I decided that our customer did not care particularly for color, but wanted a good, prolific queen, just such a one as I would select for myself, if I was going to raise honey, and so I sent him one of our \$5.00 queens. The following is his report in regard to her:

The queen you sent me the 28th of July arrived the first day of August. I put her into a hive of 10 frames 12x12, with young bees that had never seen a queen. August 3d, she commenced laying 1, 2, and

3 eggs in one cell, having plenty of room. Aug. 13, she began to lay pretty fast and regularly. She has now 8 frames full of brood, a good swarm of bees, and plenty of honey. I have 20 young queens, her daughters. The said queen is very dark, almost black, and small, nearly a dwarf. All her young queens are like herself. Her workers are small, and dark, and have 1 to 2 bands. Some apiarists have called her a poor hybrid. I have kept Italians for 12 years, and have now 137 stands, and I must say, if this is an imported queen, they must have blacks in Italy. She is not fit to have in a good colony, much less to breed from. I sent you \$5.00, told you I wanted a first class queen in every respect, was willing to pay you your own price, and if you had none to send my money back.

The \$5.00 I do not care so much for, but the disappointment I would not have had for \$50. I thought to raise 50 or 60 pure queens this fall yet, to take the place of hybrids. I fear it is too late now. Please send me a choice, good queen, an imported and tested one, or send my money back, and I will send you your queen.

Sept. 9, 1879.

J. G. K.

We ordered the queen returned with a good number of her own bees, and sent at once a \$6.00 one in her place. I presumed her small size must have been from the fact that she had just stopped laying in the fall, and almost any queen, at such a time, looks insignificant. In regard to her being a hybrid, I supposed our friend felt a little vexed, and therefore spoke a little extravagantly. It is quite human, when we get vexed with a queen, or even imagine we have been wronged in the purchase of one, to call her a hybrid. You will see from the following postal, how nearly I was right:

To-day, I send, by express, that 5 dollar imported queen. You are right; she is no hybrid, but dark. All the young bees sent with her are her bees. I wish you could see some of her queens. The last queen you sent, I think, is all right. Honey gathering and queen raising are poor here this fall.

Sept. 23, 1879.

J. G. K.

The queen came to hand, and, to my surprise, was not only of fair average size for queens in the fall, but she was rather lighter in color than the average queens as we get them from Italy. Still farther, her bees were good, well marked Italians, though of course dark, like all the imported progeny. This season, I have purchased queens from different breeders, and from different districts in Italy, and if I thought all of the imported queens I send out would equal this discarded one in color, size, prolificness, &c., I should be very happy.

One more point; do you not know, my friends, that we sometimes are persuaded that a thing is not right, and by dwelling on it, we get more and more dissatisfied, until, finally, we think we have really been wronged, when there is little, if any, ground for complaint. I do not mean to say that such was necessarily the case in the above transaction, nor do I object to your sending things back when they do not suit you; but, is there not a lesson here that we may all think of with profit? By shrewd insinuations, you can make a child satisfied or dissatisfied with almost anything he has, and are we not all but children of a larger growth?

Now, my friends, bear in mind that I have warned you before hand, that if you purchase an imported queen of me, it is quite likely that some one unacquainted with them will be quite sure to pronounce them hybrids, sooner or later. A \$3.00 tested queen will give you much prettier bees.

The "Smilery."

This department was suggested by one of the clerks, as an opposition to the "Growlery." I think I shall venture to give names in full here.

AS the honey season is now over, for this year, I will give you the result of the season's work in my apiary. I started, in the spring, with 31 colonies, about half of them being good colonies, the other half very much reduced in numbers. I have taken about 1,400 lbs. of comb honey in sections, 200 lbs. of extracted honey, and have, at this date, 93 colonies in good condition, all in chaff tement hives. I want no other hive for myself. I sold my comb honey at 12½c. per lb., and my extracted honey at 10c.

I have sent you about 22 orders for goods with about \$160.00 in money, and every thing received from you gave entire satisfaction, with the exception of the last tested queen, which was a cripple, being minus one leg when received; but, as you have done so well in every other particular, we will let that go, and I want to thank you from the bottom of my heart for the way you have dealt with me. May God bless you. I. R. GOOD.

P. S.—Please tell us again how you stand financially, as we are all interested in your welfare. South West, Ind., Sept. 19, 1879. I. R. G.

And I want to thank you, too, friend G., for it has always been a pleasure to receive your orders. Long ago, I told the clerks to send friend Good whatever he asked for, whether he sent all the money to pay for it or not, for he was perfectly "good" for all he ordered. I suspect one secret of your being pleased, friend G., is that you are not difficult to please, and that, therefore, the credit belongs rather more to you than to ourselves.

I am perfectly willing to tell you how my finances stand, if you care to know. I am paying interest at the rate of 8 per cent, on \$5,365.00; I presume the value of my buildings, machinery, &c., with the real estate devoted to the bee business, is somewhere from 25 to 35 thousand dollars. We are just getting ready to take an invoice, and I will then give you the exact amount. The buildings, machinery, and finished goods are insured for \$11,325.00.

Humbugs & Swindles,

Pertaining to Bee Culture.

[We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.]

NC. Mitchell was lately in our town and gave a lecture on the bee. He sent a lot of his circulars to one or two persons in this county, that claim to be agents of his, and they mailed the circulars to nearly all bee keepers in the county, except the readers and patrons of your papers and shop. I, with several others of your readers, live near town. I am not more than ½ mile from the post office. I got no notice, and did not know that he was in town until I saw a number of bee keepers and others going to the court-house to hear him lecture. So I went over to hear him. He had the usual programme of showing the theoretical working of his particular hive, and that division board of his, "the greatest discovery of the age in bee keeping." He also showed a dirty, worn piece of paper purporting to be his patent, taking care to keep it in his hand, and not giving permission to read or look at

it, or even reading it himself. His free lecture was for the purpose of selling his right to make and use his bee hive, wanting \$5.00 for the right. I do not think he sold a single right. I had ventilated him pretty well, and would have done it again if I had known he was coming here.

I use a chaff hive of my own construction, and the Langstroth frame. I would have had a stand of bees in the court yard, if I had known he was coming, and I know no bee keeper would take his square box frame for the Langstroth.

Salem, Ind., Oct. 9, 1879.

JOHN CRAYCRAFT.

Mitchell sends pamphlets all over the country, and he tells a very flowery tale. Some men are talking of handling us for using division boards. Can they do it? W. M. DAWSON.

Smithville, Ritchie Co., W. Va.

They have no idea of touching you, friend D. If they can scare you into handing money over to them, they will do it; but they have no intention of doing more. See their record in back Nos.

Why not club in, and prosecute N. C. Mitchell for getting money under false pretences, and put a stop to his swindle? You may count on me for one.

Natchetoches, La., Oct. 9, '79. JAMES M. COOK.

It really does seem as if something should be done, friend M. Is there a lawyer among our beekeeper's, who will tell us what to do and how to do it? In N. Y. City, they have a way of shutting such fellows up out of the way, but I do not know whether or not it can be done where a man is roaming at large as Mitchell is. Post Masters can, probably, be stopped from delivering him his mails.

MRS. LIZZIE COTTON.

This woman, with her feminine hand writing, seems almost too much for the editors of certain papers, and, what is most strange, especially the editors of religious papers. Here is the advertisement she gets them to insert, which has just been sent in by a correspondent, who clipped it from the *Christian Union*:

HONEY BEES.

NEW PRINCIPLES IN BEE KEEPING.

Every one who has a farm or garden can now keep Bees with profit. Bees kept on my plan are more profit than anything connected with the farm or garden. Every hive of Bees kept on my plan will pay a profit of Fifty dollars every year. Send for circular. Address, MRS. LIZZIE E. COTTON, West Gorham, Maine.

Now the above is bad enough, but, to make it worse, she gets the following editorial notice inserted, which was clipped from the same paper.

HONEY BEES.

The special attention of our readers is called to the advertisement of Mrs. Cotton in another column under this head. Mrs. Cotton we believe is one of our most successful bee keepers.

Now, I wish to digress enough here, to ask if it is right for editors (let alone editors of Christian papers), to insert such notices when paid for it? Does it not mean, to their readers, we would advise you to send your money to Mrs. Cotton, for we think her one of our most successful bee-keepers?

Years ago, when I was but 18 years old, I started out with an entertainment of chemical and electrical experiments. The editor who printed my bills told me to write a notice of myself, and he would "father it". Young as I was, and unused to the ways of the world, I objected. "Why," says he, "they always do it; custom has made it

right." This man was superintendent of the Sunday school where I attended church. I told him, as he knew me, to write such a notice as he thought right. He did so, and ended it by saying, "Mr. R's success as a public lecturer has been very great," although this was the first attempt at giving a public lecture. I had ever made in my life. I grew up a skeptic, and this editor grew (?) into a traveling doctor.

The N. Y. *Christian Weekly*, after being notified several months ago, as to her character, stopped her advertisement, but, if I am correct, gave its readers no note of warning, to undo the mischief they had made. In a recent issue, they gave the advertisement again, and when remonstrated with, by one of our subscribers, they write as follows:

You seem to take for granted two things and infer a third, which may not be true. 1st. *You suppose that we have not inquired.* The advertiser would be glad to have the name of our informer, that she may have redress at law in an action for libel. The postmaster and the express agent at West Gorham send affidavits as to her honesty and reliability, including truthfulness. 2nd. The journals you mention, it is alleged, are interested in certain bee hives, and are therefore interested witnesses. Our committee has made, and is enforcing, rigid rules on this subject. It refuses many advertisements which appear in other religious papers, even in those of the most conservative character; but it does not claim infallibility, and cannot be beyond deception.

Having this second letter from you, we will make further inquiries in West Gorham, and if you have disinterested evidence, in addition to your own, and send it here, it will have careful consideration. While we wish to discriminate so as to protect our subscribers, we at the same time must not be unjust to our advertisers.

Your letters of information or kindly criticism are not unwelcome, but please hereafter to reserve your inferences and imputations of wrong until you know the facts in the case.

Very truly yours, G. L. SHEARER.

New York, Oct. 11, 1879.

As they had copies of both *GLEANINGS* and *American Bee Journal*, it would seem that they want letters directly from the parties who have been swindled. Will our readers please give them such evidence. Send to Rev. G. L. Shearer, 150 Nassau St., New York City.

I have letters from both the post master and express agent of West Gorham, Me., and the affidavits given in her circular are far from being a straight transaction.

Now I do not like fault finding with the religious papers, and I do not wonder that so many of them have been misled by a woman's words and hand writing; but the thing to do now is to undo the wrong. There is one religious paper (the *Sunday School Times*) which, I am glad to say, I can hold up to you for an example, and I dare say, you will all agree with me. This is the way in which they fix the matter in their issue of Oct. 25th:

A WARNING.

The readers of this paper are here warned against responding further to the "Honey Bee" advertisement of Mrs. Lizzie E. Cotton that appeared in the issues for October 11 and 18. Information has been received which justifies this notice. If any subscriber to this paper has failed to get returns for money sent to her, the loss will be made good by the publisher, upon notification.

Again, several months ago, they advertised a mocking bird for some one down south, which would be sent for a stated sum, by

mail. When they found out how they had been imposed upon, they made correction as follows:

The fact that he pays for a given space in our columns gives a man no right to utter a falsehood, or to affirm what would tend to the injury of our readers. Of course we are liable to be deceived. What we suppose to be true may be false, whether it is uttered by ourselves, our contributors, or our advertisers. When, however, we find that we have been deceived, we not only regret the fact, but we do our best to repair any injury thereby incurred. Here, for instance, is the case of a man down in Florida advertising to send mocking-birds by mail on receipt of a specified sum. He gave what seemed satisfactory references, and we had reason for thinking his proposal an honest one. But we have ascertained that he is a fraud; that he himself is a mocking-bird. In every instance where we have become satisfied that any of our subscribers sent money to him on the strength of the advertisement in our columns we have refunded to them the money; and we shall continue to do this even though it takes all the profits of the entire establishment for the year. We want those who read our paper to feel that its every statement can be depended on; and we are doing our utmost to have them feel so.

Does not this look like "faith and works" going together? Long may the *Sunday School Times* "wave," and may their faith in God never grow less.

A few years ago the *Scientific American* advertised music boxes playing 10 tunes, for only \$1.00. Great numbers sent in their dollars, and got a cheap harmonica, with ten holes in it. The editors, when notified, stopped the ad., and consoled those who lost, by saying they supposed any man of common sense ought to know they could not get a music box for a dollar. It struck me that "any man of common sense" (who had lost a dollar) ought to know better than to have faith in the advertisements in the *Scientific American* after that.

Where a paper comes out and takes the stand that the *Sunday School Times* does, it seems to me they ought to be patronized; what do you say, boys? The paper will be sent 3 months on trial, to new subscribers, for only 25c. Let us astonish them, by showing them that the readers of *GLEANINGS* know what true Christianity is, and can appreciate it. Address *Sunday School Times*, Philadelphia, Pa.

WE have a *Symphoricarpus vulgaris* "toe." Are you not glad?

I FORGOT to say that we have about 450 raspberry plants set out on our honey farm, of varieties especially recommended as honey plants.

We have honey plants to be named, almost enough to fill a journal. The worst of it is, a great part of them are plants we have named, and so it will be mostly a useless repetition to have it all in the journal. We will try to combine them in some way, for the next issue.

ADVANCE OF GRAPE SUGAR.

In consequence of the advance in the price of corn, the price of grape sugar has risen at the factory, so that I am unable to furnish it without absolute loss at less than the following prices:

For any quantity less than a barrel, 5¼c per lb.; by the barrel, of about 425 lbs., 4¼c.

Above is for prices on board the cars here at Medina.

I will ship full barrels from New York City, for 4¼c per lb. This is for the best quality of grape or corn sugar for feeding bees.

GLEANINGS IN BEE CULTURE.

A. I. ROOT,

EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POST-PAID.

MEDINA, NOV. 1, 1879.

What *doth* it profit, my brethren, though a man say he hath faith, and have not works? can faith save him?—James, 2; 14.

We can give you any kind of a queen you wish, by return express.

FRIEND H., of whom I wrote on p. 383, Oct. No., was just in, and says he must have chaff hives for all his bees, and if he had but "*one bee*," he would put him in a chaff hive, that he might die comfortably, if he "did die."

ADVANCE IN PRICES.

OUR new price list has been delayed on account of the great and unexpected advance in many of the articles in the line of tin and iron goods. Tin for separators has advanced from \$7.00 to \$9.00; tin for extractors and corners, from \$9.00 to \$11.00. We shall not advance the price of corners, while our present stock lasts. Although the price of lumber is up greatly, we shall fill orders for hives, this fall at least, at old prices.

ALL new subscribers who remit \$1.00 during this present month, for GLEANINGS during 1880, will receive Nov. and Dec. Nos. free. All old subscribers who send \$1.00 during the present month for 1880, may have as a premium, any 3 back numbers they choose, with the exception of Vol. III, the first 6 Nos. of 1878, and the first 3 Nos. of 1879. You may have in place of the back Nos., if you choose, a two foot rule, a thermometer, or the photo of "Novice and Blue Eyes." For 10c. more (\$1.10 in all) you may have the little plane, the hammer with the walnut inlaid handle, or any one of the 25c. A B C books.

My editorial notice of friend Alley last month was intended as a kind admonition to him, to take better care of his customers. There has been much and continued complaint, and several have demanded that his advertisement be stopped, for the good of others; but I felt like trying gentle means first, and the editorial, I think, was mild, although he thinks otherwise. Not having his circular at hand, I did not use his exact phrase in regard to employing boys and girls, and the man who sent him money last March, said he sent for 3 tested queens, but did not give the amount of money. I gave both items from memory, simply for illustration. If friend A. will answer letters of complaint promptly, and return the money for orders which he cannot fill, I will see that he has no reason to consider GLEANINGS unfriendly to him and his business.

SINCE so much of a trade has sprung up in the bee supply business, a great many have gone into it, and some of them, I fear, with the idea that a great deal of money was to be made out of it, with but little hard work. The consequence is that quite a number are leaning strongly toward the Mitchell and Cotton style of doing business. Now, unless these people do straighten up their business matters, I shall feel it my duty to warn our friends against trusting them with any more money or goods. I will give them all reasonable time, and I will carefully look into all the circumstances of the case, but those who refuse right out, to make any attempt at paying their honest debts, must stop advertising for more people's money, or be held up for the good of others. I have kindly warned them, but two of them have threatened me with law suits for a slander if I publish them, and a third has declared he would tell more damaging stories about me than Mitchell does. Now I do not fear any number of law suits, if I can feel that God is on my side, neither do I care what all the world may say about me, but I do fear my natural disposition may prompt me to go into these things too vehemently, and I would be

very glad of advice from you, my friends, in this matter, when you are sending in your subscriptions. What shall we do with the brothers who keep our money, and won't answer letters? If praying for them and pleading with them won't do, shall we put their names in a corner, that others who work hard may not lose their money by sending it to them?

Honey Column.

Under this head, will be inserted free of charge, the names of all those having honey to sell, as well as those wanting to buy. Please mention how much, what kind, and prices, as far as possible. As a general thing, I would not advise you to send your honey away, to be sold on commission. If near home, where you can look after it, it is often a very good way. By all means, develop your home market. For 25cts., we can furnish little boards to hang up in your door yard, with the words "Honey for Sale" neatly painted. If wanted by mail, 19c. extra for postage. Boards saying "Bees and Queens for Sale," same price.

Wanted.—Thick, White Clover Honey, extracted. Write me with lowest cash price.
Brownsburg, Bucks Co., Pa. WILSON HARVEY.

Wanted.—Several hundred pounds of Honey, at 9c. for Extracted, and 13c. for Comb Honey,—all first class, white clover honey, delivered here.
Orange, Franklin Co., Mass. A. W. CHENEY.

Wanted.—500 lbs. white clover honey, in 1 lb. sections, white and straight combs, delivered at R. R. depot, Dayton, O., at 15c per lb., cash on receipt in good order.
Dayton, O., Oct. 27, 1879. J. H. PIERCE.

CITY MARKETS.

CHICAGO.—Honey—Choice, in single comb boxes, 10@12c. Extracted, 6@8c.

Bees-wax.—Choice, yellow, 20@22c. Darker grades, 12½@15c.

NEW YORK.—Best white comb honey, 1 or 2 lb. boxes, neat crates, 18@20; Fair, ditto, 15@17; Buckwheat, ditto, 12@13; comb honey, in 4 lb. boxes and larger, sells about 2c per lb. under above prices. White extracted honey, in bbls., 9@9½; 2nd class, ditto, 8@8½; dark, ditto, in kegs, 7@7½; Southern strained honey, per gal., 70@75.

New York, Oct. 18, '79. H. K. & F. B. THURBER.

Bees-wax.—Choice, 25c.

CINCINNATI.—White Clover Honey in full packages (a bbl. or ½ bbl.) per lb., 10@11; ditto, in tin cans of 10 or 25 lbs. net, per lb., 13@15; ditto, in 1 lb. glass jars, 1 doz. jars in a case, per case, \$2.00; 12 cases of same, \$22.50; ditto in 2 lb. glass jars, 1 doz. jars in a case, per case, \$3.50; 12 cases of same, \$40. Linn or Basswood, Poplar, and Buckwheat Honey, in original packages, per lb., 8@9. These latter three varieties in tin buckets (of 10 or 25 lbs. net), per lb., 12@14. Good White Clover Honey, in combs, 13@14; Choice, ditto, 15@16; Choice California Comb Honey, 14.

The honey market is buoyant, and demand good for all kinds, altogether different from this time last year. While plenty of extracted honey is offered, comb honey appears to be scarce. An advance of 2-4c per lb. is established on the latter, with a small stock on the market.

Cincinnati, Oct. 7, 1879.

CHAS. F. MUTH.

ST. LOUIS.—Honey—Scarce and firm. Fair to choice comb, in nice pkgs., 14@16c. Extracted 10@12c.

This market is bare of good stock in nice condition, and it is wanted.

B es-wax.—Prime, slow at 20c.

R. C. GREER & Co.,
117, North Main St., St. Louis.

SAN FRANCISCO.—Honey—Comb, white, 12½@15c; Extracted, 9@11c.

Bees-wax.—Best, 20@22½c.

STEARN & SMITH, 423 Front St.,
Oct. 18, 1879. San Francisco.

OUR OWN APIARY AND HONEY FARM.

THE SPIDER PLANT (*Cleome Pungens*) IN OCT.

TO-DAY is the 11th of October. This morning, I got up before 6 o'clock. I had been reading, the night before, in Muller's book, "The Life of Trust," and I was particularly impressed with what he says about early rising, and the blessings God sends to those who make it a point to rise early, and give their best and freshest thoughts to him. I put the book away, and went right to bed, that I might get up early. The gray of approaching daylight heralding in this warm autumn day met my gaze, as I sallied forth toward the factory. I opened my mouth, and took in the fresh pure air, and, as I opened my eyes to the beauty of the world we dwell in, I opened my heart in thankfulness to Him who gave it all. As I came near the garden, I was surprised to hear a loud humming so early. It was not robbing, but it was a hum of rejoicing. How strange it is, that bees will make this

happy hum over the honey from the flowers, but never over syrup from any kind of a feeder. The sound led me to the spider plant. It had been bearing honey a couple of months, at night, and early in the morning, but I had no idea that they ever made so much noise over it as now. I approached leisurely, but was startled to find that each floweret contained a large drop of some liquid, so large, in fact, I thought it must be dew, and not honey. I touched my tongue, and behold it was fair honey, of a beautiful limpidity and taste, and then I understood the humming. As a bee alighted, and made his way down between the stamens, I watched until he spread out that delicate, pencil like tongue, and began to draw in the nectar. Surely no bee can take in so large a drop; and so it proved. He lapped as long as he could and then rested awhile; again he sipped the "sparkling ambrosia," and again he stopped. I could imagine him soliloquizing as he dipped into it a third time.

"Did any body ever before hear of a sin-



MRS. MOLLIE O. LARGE'S SPIDER PLANT, THE GREAT HONEY PLANT OF THE AGE.

gle floweret containing more than a bee could carry?"

He finally spread his wings, and essayed to fly, but his greed had been too great, and when he bumped against a Simpson plant, which is now out of bloom, down he went on his back in the dirt. Others did the same way, but soon they tried again, and I presume created a commotion in the hive, by coming in, podded out with such a load. Now will our friend, Mollie O. Large, tell us if she has ever seen the like among her plants? An acre would furnish—whew! I should not be surprised if it made a barrel of—sweetened water, any way, every morning. Now I want four acres of the Simpson honey plant, and four more of the Mollie O. Large honey plant; if the name was not so long, we would call it so, for the credit she deserves for calling attention to it. Dear me! the honey farm will not be large enough. I have set the hands, to-day, to doing more under-draining, and I am going to plow up all corners, and work up close to the fences, for we cannot afford to have a weed grow on the premises, so long as there are plants that

bear honey like this. These plants are in our flower garden, close by the building, and have had a very rich deep soil. This, perhaps, may account for such large amounts of honey. This plant is strikingly like the Rocky Mountain bee plant of which I have given you a picture already, but it is so much larger, and bears so much more honey, that I can hardly think it worth while to offer the seed of the latter for sale any more. Our engraver has given you a picture of the plant, as it appears in our garden.

The picture scarcely needs explanation. On one side, is the beautiful leaf of the plant; on the other, one of the flower stalks, of which there are from 12 to 20 to each plant. As the flowerets, shown in the centre, keep blossoming each evening, the stem grows out in the centre, until it becomes, finally, two feet long or more, and lined with seed pods its whole length. These seed pods, when ripe, break open, and the seed must be gathered daily, or it is lost. Each floweret opens twice, but the honey is only yielded from the first blooming. In the centre of the picture, a single floweret is shown, with

its load of honey sparkling in the rays of the rising sun. The sight of a whole plant bending beneath a sparkling load of nectar like this is enough to set any bee keeper crazy, let alone your enthusiastic old friend Novice. Our plants are on ground made by piling up the sods taken from where the factory stands; this may, in part, account for the great yield of honey.

P. S.—"Lu" who has the care of the honey plants, has been instructed to save every particle of seed, and we can, at least, be able to furnish you all a 5c. package. Perhaps our friend Mollie has seed enough by this time.

MORE ABOUT THAT WONDERFUL SPIDER PLANT.

Oct. 14th.—Yesterday morning, Mr. Gray came down before sunrise, to verify my observation and see that there was no mistake about that large drop of honey, the product of a single night. There is no mistake. Not only does a single floweret produce a large drop, but some of them produce a great many drops. Last evening, we made observations by lamp light; and, before nine o'clock, the globules of honey were of the size of large shot. The crowning experiment of all took place this morning. I was up a little after 5 o'clock, and, with the aid of a tea spoon, I dipped honey enough from 3 or 4 plants to fill a 2 dram vial, such as we use in the queen cages, a little more than half full. The honey in some of the flowerets had collected in a quantity so large that it spilled out and actually streamed on the ground. I have called this honey, but it is, in reality, the raw nectar, such as is found in clover and other flowers. The taste is a pure sweet, slightly dashed with a most beautiful, delicate flavor, resembling somewhat that of the best, new, maple molasses. The honey will be as white as the whitest linden, so far as I can judge. With the aid of a lamp, I evaporated the nectar down to thick honey. You can see something of what the bees have to do, when I tell you that I had in bulk, only about 1-5 part as much, as when I commenced. You see now, we have some accurate figures with which to estimate the amount of honey which may be obtained from an acre of honey plants.

HOW MUCH HONEY WILL AN ACRE OF PLANTS YIELD?

I think I visited with my spoon, four plants. Perhaps half of the nectar was wasted, either by overflowing before I got there, or in my attempts to spoon it out. This will give a half dram of nectar to each plant, each morning. We shall set the plants 3 feet apart each way. At this rate, we have nearly 5,000 plants to the acre, and they would yield every morning, perhaps 5 gallons of nectar or one gallon of ripe honey. The plant has been in bloom in our garden, for the astonishing length of time, of about 3 months; this would give, counting out bad weather, perhaps, 60 gallons of honey, worth—say \$60.00. I have known a single colony of bees to gather a gallon of raw honey in a day, from the clover, but as the bees seldom work on the spider plant after 9 or 10 o'clock in the morning, an acre might require 5 or 10 colonies, to go all over it every morning. How many acres of

our best honey plants will be required, to keep 100 colonies out of mischief? As the Simpson honey plant yields honey all day long, the two would go very well together; and I am inclined to think 5 acres of each (*good soil, well cultivated*) would keep 100 colonies of bees busy and out of mischief, at least, during the whole of the fall months when bees have nothing to do.

Bear in mind, my friends, that this plant yields by far the largest amount of honey of anything that we have ever come across, and that its time of blossoming extends to an unusual length. It may be also, that this amount of nectar is only caused by the unusually fine, warm, October weather we are now having.

Our boys are, to-day, planting out 1,000 Simpson honey plant roots. I would advise no one to undertake such experiments, unless they can stand a failure, if it should prove such.

DIFFERENCE IN COLONIES AS HONEY GATHERERS.

A few days ago, Will asked me to look at a particular hive. Although it was a stock containing few bees, every comb was filled and bulged out with honey, and the cells were in the process of being lengthened and capped over, right in October.

"Has not this colony been fed?" said I.

"Not a drop."

"Do you know where they are getting this?"

"I do not. I was as much surprised as you are, when I saw it, as I was making preparations to feed all of them for winter."

I watched them for several days; there seemed to be little, if any, more activity with this colony than with the rest, but every bee that came in was heavily loaded. Pretty soon, I saw that many of them, as they came in, had small loads of dark green pollen (as well as honey) like that from red clover. Although I have not been able to find the clover field, I have no doubt they have found one, and it is from that they have filled their hive.

Why do they get honey so as to fill their hive, when others do not? Because the progeny of this queen happen to be so much more industrious. Among the hundreds of hives around them, there are some others that have partly filled up but none like this one. I have noticed and mentioned similar cases before, and I have every reason to believe that, so long as this queen lives, her bees will always have stores when the general run of bees have none. The queen is a full blood Italian; the one I have spoken of in back volumes, whose bees always got honey in the fall, was a hybrid. Think of it! she has been worth a dollar in *honey*, if not *money*, more than the average queens in my apiary, in the last two months!

Which is of most importance, my friends, light colored, yellow bees, or hives full of honey, during a dry September and October? I am very much inclined to raise queens from this queen, next season. All you that would prefer one of her daughters, next season, instead of a queen from an imported mother, please—raise your right hand! If you order, refer to this page.

HONEY PLANTS NOT INJURED BY FROST.

Oct. 25th.—We have had a pretty severe frost, and its effect on the honey plants is as follows: Mignomette is not injured at all, but the bees were just as busy on it after the sun came out, as they were the day before. The spider plant does not seem to be perceptibly injured, but it has yielded no honey since the frost; as it keeps on blossoming, I presume it will yield honey again when the nights are warm enough. Seven top turnip seems to look all the better for the frost, except where the plants are just up some of them seem to be injured. Rape stands frost as well as the turnip. Borage is affected little, if any. The balsams and touch-me-not are "dead as a door nail." Simpson honey plants are not injured at all, and when a plant can be found yet in bloom, the cups are full of honey as before the frost, and it can be kept back, so as to bloom very late. The Simpson, so far, all things considered, stands ahead of all others, with us; but I have had reports from localities, where bees are never seen on it, nothing but flies and wasps.

Three other plants *Erysium*, *Cacalia*, and *Phacelia*, reared from seeds obtained from Nellis, seem to promise well, but give no such yields as the spider plant and Simpson.

THE CHEAP CANDY FOR BROOD REARING.

A colony fed on the new grape-sugar candy has hatched out quite a colony of bees all right, and I cannot see but that sugar and flour diet produces just as fine and healthy bees as the natural honey and pollen. How many lbs. of candy will it take to make a lb. of bees? Who will tell?

SPEAK GENTLY.

THERE is an excellent moral in the following, which I think you will see, if you read it through.

I sent you an order, Aug. 15th, 1879, containing \$6.56; for the small circular saw mandrel, \$5.00; Simonds 6in. saw, \$1.15; setting and sharpening, 30c.; and 5 inch file for the same, 20c.

I think it is unkind in you to delay filling the order, not even letting me know that you received it. I suppose you will blame your clerks, but that doesn't make me good; I have been daily expecting it at the express office, but not even a letter comes. I forgot in the order to state that I wanted a rip saw.

REESE POWELL.

Mineral Point, Wis., Sept. 24, 1879.

Now, although I scold the clerks "often and well" as many of them will tell you, when any body else finds fault with them it touches me perhaps more than if they found fault with myself; and so I directed the following to be written our customer:

"Are you not a little unkind, friend P., in being so positive that either myself or clerks must be at fault?"

No such order as you describe has ever come to us, but so positive are you that we have received it, that you do not even state whether it was a P. O. order, registered letter, or check which you sent, and thus enable us to recover it. You surely did not put such an amount of currency in an un-

registered letter, did you? See Oct. No. of GLEANINGS. The goods are ready to ship at a moment's notice, when you tell us how to recover the money."

And here is the reply:

Yours of the 1st inst. is at hand, and contents noted. I am sorry for speaking so about you and your clerks. I thought (without doubt) you had received the order and money, and it was delayed with you on account of being busy. I was angry because you did not send me a postal that you had received the money, which you did not do for the reason that you had not received the money.

It was sent in a letter, not registered, as you recommend in your catalogue. I am very sorry for it now. I did not have 10c. to have it registered. I had hard work to have money enough to fill the order, as I am nothing but a boy, 13 years of age. The money I had was what I had saved by selling honey from a few swarms.

Is there any way of recovering the money and letter.

REESE POWELL.

Oct. 13, 1879.

As I read the above, I thought,

"Why, bless your heart, my young friend, I never dreamed from your letter that it was only a boy I was dealing with, or I should not have censured you as I did. I beg your pardon, and hereafter when I think any of our correspondents are inconsiderate, I will try to remember that perhaps he is only a boy, 13 years old, and not be too severe. I wonder what that other boy that I saw behind the iron bars would say, had I told him this story. It is really too bad, friend P., and you shall have the saws and arbor this minute: and you may pay me $\frac{1}{2}$ of the price whenever you get it, even if it is not until you get another crop of honey. I was a boy 13 years old myself once."

I know of no way of recovering the letter.

SUCCESSFUL SHIPMENT OF IMPORTED QUEENS.

On the 6th of Oct., we received from Italy 52 queens, and 50 of them were alive. Only one was lost in introducing. The shipper, at present, does not wish his name given. As we go to press, we have just received notice of 31 on the way, so that we shall probably be able to fill orders, this fall, and I hope next spring.

AN item headed "Managing Bees by Electricity" is now going the rounds of the newspapers. The whole thing is a simple absurdity, and the writer seems devoid of any knowledge of either electricity or bees. No body wants his bees stupefied, even if electricity would do it, and yet allow them to come to life again. A good shock of electricity might do good to the man who first drags such falsehoods into print; if he shouldn't "revive" he certainly would never tell any more.

OBITUARY.

Our friend, Wm. H. Kirk, whose communications have appeared all through our back volumes, has departed this life, after a short sickness of but a week, as we learn from the *Bee Keeper's Exchange*. His memory will long be treasured fondly, by more than one of the readers of GLEANINGS.

BEE BOTANY AND ENTOMOLOGY.

OUR THIRD WAX DESTROYER.

THIS is the common meal worm, *Tenebrio molitor* (Fig. 1), and is very common about mills and grain bins containing meal, flour, etc. Many of our bee keepers have seen this beetle and the wire like grubs about their hives and bee houses, and some, like myself, have doubtless seen their comb ruined by these same grubs.

The full grown grub (Fig. 1) is smooth, cylindrical, a little more than one inch long, of a yellowish brown color, and resembles very closely the common wire worm, which is often so destructive to corn, potatoes, etc. These grubs feed on meal, flour, sea biscuit, and the pollen which is stored in the combs.

The beetle (Fig. 2) is 6-10 of an inch long, black, and closely resembles our common ground beetles, though its legs are shorter, and its antennae (see Fig. 2) bead like, instead of serrate.

Meal put about the combs will attract the insects, when they may be easily destroyed.

If these grubs could be induced to exercise a little more care, and eat the pollen, without injury to the cells, they might well claim the prize offered by the New York apiarists. I am now trying to educate some of these beetles, so that they may practice this discretion, and, if successful, will report to the bee journals.

A. J. COOK.

Mich. Agricultural College, Aug. 11, 1879.

ASTER TRADESCANTI.

W. J. BEAL:—Enclosed please find a plant which I have been watching all day. It has been swarming with bees and they were gathering both honey and pollen. It is something I have never noticed in this section of country. It is a very profuse bloomer, and yields much honey. I will save the seed. Please answer through GLEANINGS, and you will confer a favor.

D. T. KIMMELL.

Moberly, Mo., Oct. 3, 1879.

Answer by Prof. W. J. Beal, Michigan Agricultural College.

This is *Aster Tradescanti*, a species very common in many portions of the United States. It is just as good as others, but no better than forty other asters which grow in our country. All are prominent for bees in autumn.

PRAIRIE CLOVER.

I send you a few stalks and roots of a bee plant. The plant has from one dozen to three dozen flower stalks to each root, with one half dozen or more little balls, or clusters, of snow white flowers. The stalks are from 18 inches to 2 feet high, and grow in clay soil entirely, in the very poorest places you can find. The flowers are very fragrant, and smell like honey, and are in bloom by the first of June, and remain from 8 to 10 weeks. This and the mesquite are two of the finest honey plants we have on the prairies.

We have had no rain to do any good since the 5th of May. Bees are getting some honey; but in places there is no water for man or beast.

B. F. CARROLL.

Dresden, Texas, Aug. 19, 1879.

This is a species of *Petalostemon*. The plant is not in good condition, so it is not possible to decide the species. The common name is prairie clover. There are five species east of the Mississippi River. They are closely related to the clovers and are all excellent bee plants. I have often seen bees working on the flowers for weeks at a time. At the South, perennial plants usually remain in flower longer than they do further north.

W. J. BEAL.

Agricultural College, Lansing, Mich.

MOLLIE HEATH'S HONEY PLANT, STICK WEED, AND BUTTON WEED.

I am located on James River, in full view of the celebrated Dutch Gap. I send you three samples of honey producing plants, which grow spontaneously over our fields. The one with the yellow flower and pods belongs to the pea family. The little blue aster now covers entire fields. They are the spontaneous growth on sandy land, after the oat crop is harvested. They seem to furnish the principal food

for my bees, at this time. The other sample is known here as the stick weed, which is a pest to farmers, as it is not regarded valuable as a fertilizer or suitable for pasturage. I send you the top only of the bush, for it grows about 4 ft. high. It blooms in September. It grows on stiff clay soil, and presents quite a beautiful sight when in full bloom.

GEO. W. FRIEND, M. D.

Chester, Va., Aug. 28, 1879.

The first specimen is, as you say, of the Leguminosae or Pulse family, and is of the genus *Cesalpinia*, though of a different species than the *Poinciana*, not possessing the long crimson filaments that distinguish the latter. See "Mollie Heath's Honey Plant," April GLEANINGS, 1879. The one called "stick weed" is a species of aster, *Aster miser*. The third, we referred to Prof. Beal, who replies as follows:

This is *Diodia teres* (Button weed). It belongs to the Rubiaceae or Madder family with Galium, Button bush, Partridge berry, Houstonia, all of which are good bee plants, and some have numerous species.

W. J. BEAL.

EUPATORIUM ALTISSIMUM.

I send you the top of a plant which is growing in our wet lands, and is also getting on the hills somewhat, on my farm. It grows from 3 to 4 feet high, is full of branches, and blooms full of sweet scented flowers which produce a light colored, and pleasant honey in abundance. Will you give me, or us rather, the name of it in GLEANINGS. We call it the bee weed.

G. A. WILLIS.

Enfield, Ill., Aug. 27, 1879.

This is *Eupatorium Altissimum*, a plant with no common name. The genus is the same as that to which boneset belongs. There are 25 species east of the Mississippi. I have had five or more species sent me by apiarists, and shall not be surprised to receive any of the rest.

W. J. BEAL.

Boys' Department.

WON'T you listen to, and answer, a few questions? One of our hives of bees does not seem to do anything but stay in their gum all day long (and night too, I presume). I have begun to fear that not every thing is right with them. I will give you all the particulars. First, it has given us but one swarm this year; second, we have not "robbed" it yet; third, it is sitting in a cool corner of the fence, and seems to have suffered less from the warm weather than any of the other hives. I also noticed one of those "dun-colored flies" going into it, the other day. What is the matter with them? Our other three hives are at work hard every day, gathering pollen and a little honey. They get the pollen from the bitter weed, and the honey from a little plant that grows down in the broom-straw, and has a tiny blue flower on it. I would like you to tell me what it is.

Now, Mr. Root, don't laugh at me, for I must tell you,—my hopes are running high just now. I intend to buy a foot-power saw this winter, and then—I'll let you know. Pa has promised me a barrel of syrup this fall, and I am going to invest it in the bee business. Do you think that will be a good investment? I will also get something for collecting for pa, which I will put to the same use.

D. S. BETHUNE.

Snyder, Ark., Sept. 5, 1879.

Open your hive, my young friend, and see what is the matter. It will be a deal easier way than writing all the way up here. If it isn't one of the kind that *opens*, make it so, forthwith; that is, transfer them into a movable comb hive. Don't invest any more in bees, until you have taken better care of what you have got. In fact, I do not know but such advice would be best for all of us,—stop investing, and take better care of what we have got.

A BOY'S EXPERIENCE IN INTRODUCING QUEENS.

Mr. Root:—Have you any idea how a boy feels when he has worked hard to get a little money, and sends it off for a bee—just one bee? Then the worry for fear she won't come, or will come dead, or will get killed in introducing! I can describe every symptom. It is a fever that must run its course, which it will do in ten days usually. It's a fever that just makes a boy sick, but the getting well makes him a man. I am just a little too big for my pants, but can't help it. I received my queen on the 15th. Next morning was rather showery, so I could stay at the house. I had a colony which had never had a queen. I opened the hive, took off one side of the queen cage, laid it on top of the frames, and, in a few minutes, some of my blacks came up to see who were their visitors. According to the nature of all true Southerners, bees as well as people, they cordially invited her and her attendants down, and gave to them of the best they had. On the 17th, she had gone to business. There were only 2 dead bees in the cage; honey was all gone, but very little candy or water was consumed. Wasn't that nice? and am I not lucky? But you must know that I inherit my love of bees and honey. Some of my ancestors, I doubt not, were Noah's bee-keepers; for as far back as any one knows, the Trices were bee-keepers in the old fashioned way, but they would have lots of honey. I think I will have to get me some fdn. I am feeding now; it is so dry, bees have done nothing this year.

Many thanks for the nice bees and good advice. I hope you will be the bee-keeper in the ark when the next flood comes.

THOMAS H. TRICE.

New Providence, Tenn., Aug. 22, 1879.

A GOOD REPORT FROM CANADA.

FDN. ON PAPER, SUCCESSFUL WINTERING, ETC.

DEAR NOVICE:—Try sheets of paper dipped in wax, instead of using wire to keep fdn. from sagging. I have used sheets the same as the one I now write on (the bees have not eaten out the paper yet), and also leaves of fashion books, and various pictures on paper foundations. I am trying other things. Try all kinds of paper. Have your illustrated catalogue put in foundations, and built out, and hang it in your office. Give it a trial in strong stocks, but don't "raise Cain" about it until we prove it beyond doubt.

I intend writing on wintering soon, as I have solved the mystery and winter hundreds of stocks, every year, without loss.

My bees are very strong and I am taking from 1500 to 3000 lbs. per day, and have been for a long time. American honey is now shut out of the market, by the high tariff, which is about fifty per cent on value.

Bee keeping is looking up in Canada, as I never had so many orders for fdn. before, and the demand for extractors is increasing. Some days, I ship 6 a day. Increase of business, however, is probably partly owing to the national policy, which places the duty so high on imported goods, that they can be procured much cheaper here. In a few years more, I think, we will be able to compare favorably with California for honey. My crop, this year, will be hundreds of barrels, if the season continues good to the end, as it has been so far. The basswood is just out, and the tops are a perfect cluster of bloom. I never saw it so good, and all our honey this year is very fine.

I am pleased to see GLEANINGS so well edited, and the extraordinary efforts you are putting forth to make it a success, combined with your large experience and unselfish motives, must soon make it a welcome visitor to every bee keeper in our land.

D. A. JONES.

Beeton, Ontario, Can., July 19, 1879.

Many of our readers will remember friend Jones, and his articles a few years ago. Of late, we have not heard from him, and I often wondered what new invention he was working at, that caused him to keep silent so long. It seems he has been quietly building up an apiary, and now he is reaping the reward, and so full of business he can hardly stop to tell his old friends of his successes. I have delayed the above article, hoping to hear further in regard to that great yield of honey, but as he does not write, have resolved to give it as it is, before the year closes. Combs built on paper work nicely in our apiary, as long as the flow of honey holds out; but after it is gone, our bees go to digging it all out. Tell us more about the hundreds of barrels of honey, friend J. I shall have to beg our readers' pardon for printing that concluding paragraph; I think friend Jones' prosperity must have had the effect of making him look with charitable eyes on all the world, your humble servant included.

CAN BEES HATCH THEIR EGGS AT WILL?

THIS may seem a strange question to ask after we have been told, for years, that the eggs laid by the queen hatch in about 3 days. We have been told a great many things, which a little practical experience, based on a few careful experiments, will prove to be false. Not but that, as a rule, bees hatch the eggs laid by the queen in about 3 days, but we claim that bees have the power to control the hatching time of the eggs; that is, to lengthen the time to weeks, but not to shorten it materially.

Now for the proof of our position: On p. 14, *A. B. Journal*, Vol. 10, you will find these words from our pen: "We never had so much brood according to the number of bees in our hives, five hundred bees covering five thousand of brood easily." This brood appeared as if by magic, and this was the first time we gave the matter any attention. Next, on p. 71, of GLEANINGS for 1875, we again wrote, on the subject of feeding for brood rearing, as follows: "We have succeeded in getting the queens to lay, but the bees would not hatch the eggs." These experiments were conducted in Oct., 1874, and at that time we were quite positive that the above assertion was correct; yet it was not till 1878, that we proved it beyond the shadow of a doubt. It will be remembered that the spring of '78 was extremely warm till about the 10th of May, at which time, it became cold and continued so till well into June. As the frost spoiled the apple blossoms, we were obliged to feed to keep our bees from starving. We fed for three weeks, and during all this time there were always eggs in plenty, but no larvae.

These eggs kept the same place in the combs, yet at no time could we discover any larvae. But, says one, the bees removed them as fast as they were ready to hatch and the queen kept laying. We were almost ready to think so ourselves, but listen. It came warm suddenly, and the bees went to work bringing in plenty of pollen, and some honey, and in 24 hours the cells were teeming with larvae just hatched. Tell us where these came from, if not from those eggs that had been in the cells for three weeks. The queen commenced to lay again and, in due time, these eggs hatched, but not till the former larvae had attained 1-2 their size.

Another thing: To try the value of feeding at such a time, we fed two swarms all the syrup they would carry during the whole three weeks, but they reared no more larvæ than any of the rest that were only fed to keep them from starving. During warm weather, we can do better; but we have come to the conclusion that it does not pay to feed for brood rearing. We are sorry to go against our old teacher, E. Gallup, in his last article, but this is the conclusion to which we are driven after years of experience. Perhaps, if we fed the flour candy we might change our mind, yet we hardly think so, as our hives are always well supplied with pollen.

In my report, your compositor made me say that 7-12 of my honey for the past 7 years was box honey, while it should have read, 11-12 was box honey.

Borodino, N. Y., Oct. 13, '79. G. M. DOOLITTLE.

I am very glad, friend D., that you have taken up this subject, although I cannot at present feel sure you are not mistaken. For many years, I have noticed that eggs did not always produce larvæ, and, like yourself, I have seen eggs daily, for many days, without any larvæ, or at least so few, that it was very plain the eggs were not hatching. My explanation of it was the lack of pollen (see p. 48, GLEANINGS for 1873, and p. 116, GLEANINGS for 1874); and many experiments seemed to indicate that when other conditions, such as plenty of food, plenty of bees, etc., were not wanting, every egg, or at least nearly every egg, produced a bee. The flour candy and chaff packing seem sufficient to raise any amount of brood, even in winter, as Mr. Langstroth's experiments of last winter and spring abundantly show.

Now, in regard to the point that eggs which have remained in the hive more than 3 days unhatched may, after a longer period, hatch out into larvæ: If this is so, we may remove the queen after she has filled a comb with eggs, and find eggs in the combs for a longer period than 3 days, and yet they may hatch into larvæ. If this is possible, I must still think it a very rare occurrence. In our experiments of sending eggs and larvæ by mail, we have gone over this ground a great many times, and I have never known an egg to produce larvæ, after it was 3 days old. I, too, have noticed the large number of larvæ immediately after a sudden yield of natural pollen, but I ascribed it to the queen's having laid a large number of eggs in a very short time. If a comb containing eggs is taken from the hive, the eggs, if kept warm, will preserve their plump, fresh appearance, for the three days, but after that they shrivel up, and present the appearance of a wilted vegetable. The microscope makes this very plain. If we can have good eggs after the queen has been removed from the hive for 4 days or more, I shall be fully convinced, friend D.

TESTED QUEENS TURNING HYBRIDS, AND TWO QUEENS IN ONE HIVE.

DEAR NOVICE, or GLEANINGS (or both, just as you like best, for it gives me the greatest pleasure to read your valuable paper):—On account of poor health, I am not able to do hard work, so am assisting my uncle in his apiary, and I enjoy working with the bees very much. Our minister borrowed the GLEANINGS, awhile ago, and you will

think me selfish, but I declare I would rather he had taken the Bible, for we happen to have more than one copy of that book. I like to read your "Our Homes" very much.

As regards what L. R. Jackson says on page 392, of GLEANINGS, about tested queens producing hybrids, I would say, I think we have had a similar case. I can not accept your theory that a queen bee can meet a drone the second time at all. Excuse me for differing with you, as my experience has been rather limited compared with yours. I will give you some facts that happened the past summer, to show how a tested queen may produce hybrids, and also how two queens lived in peace for some 25 days in one swarm. I give the dates as the facts occurred, so you can see there was no mistake.

A tested queen with her wing clipped was wintered on stand 14; June 13th, removed queen to 61; 27th, removed queen to 40; July 5th, removed queen to 5, and concluded to let her remain. When we took her out of 40, we found queen cells nearly ready to seal over. These I destroyed, of course, as we were not sure they were from the tested queen. July 16th, I began to take brood from 5, to raise queens from, but had some difficulty in finding enough of the right age. The bees now began to make small queen cells, and the queen would lay in nearly every one. In a number of cases, I allowed them to remain till they were capped over, and then removed them to nuclei. I now made up my mind the queen was about failing from old age, and that the bees were going to supersede her. One day, I found several large cells destroyed. As the old queen was all right, I supposed the bees had changed their mind.

Sept. 8th, I concluded to make a final "post mortem" examination of the swarm, and see if it was best to try to winter the old queen once more, and was pleased to find plenty of brood in all stages, also the old queen apparently doing her duty like a man; but, just as I had concluded that everything was according to—"Dr. Watts," I discovered another large laying queen, not more than 5 inches from the old one, on the same flake of comb. To say I was somewhat astonished, would come far short of the truth. The next day, I took the old queen away. I wish, now, I had let her remain and watched the proceedings on that line the rest of the fall, but my wits come in streaks, and I often think of what might have been. I watched the hatching brood for six days, before the hybrids began to come out, so you see the young queen had been laying 15 days when the old one was taken out. Allowing her to be 10 days old when she began to lay would make 25 days that two queens were together in the same swarm, in peace and harmony. In my opinion, those hybrid bees in Mr. Jackson's swarm, or any other swarm, did not come from a tested queen.

You perceive I am not a man of few words (my friends could have told you that before). You must not crowd out valuable matter, but if there are any facts here that you can make use of in your interesting paper, I should be pleased. THOMAS R.

Putnam, Conn., Oct. 14, 1879.

Thanks for your compliment, friend R., but you are too late in your belief that queens do not meet the drones more than once. It is comparatively a frequent thing to find a queen returning with the marks of having met the drone, and then to have her go out next day, and return again in the same way. Would it be strange that she should meet a black drone at one time, and an Italian at another? Your explanation of the matter, that there may have been two queens in the hive, is a good point, and it may have been the case in some instances. As it is almost impossible to be able to affirm with absolute certainty that there are not two queens in almost any hive, the suggestion is certainly a valuable one.

TRIALS AND TRIBULATIONS OF INTRODUCING QUEENS.

AN A B C SCHOLAR'S STORY.

THE queens came all right (some of the workers were dead), a day ahead of the notice. I immediately proceeded to introduce them according to directions. When the two long days were fully accomplished, I let out both of them. The \$2.00 queen, of course, I was the most anxious about; so, instead of covering the hive over, I tried to see what she would do; or rather, what the bees would do. I could not see her, so I took out the comb she ran down on. Then I found her easily, as she was so different in color from the rest of the bees. The bees did not notice her much, and I was about to put the frame back, telling my wife—she was helping me(?), and standing at the corner of the house several rods away—“*She (the queen) is all right,*” when the royal lady came to the top of the frame, and flew off and away over the tops of the trees. You can well imagine our feelings then, and our exclamations of sorrow and regret; but, just as I was declaring that money could take to itself wings and fly away, and Mrs. M. was saying “Your queen has ‘gone up,’” she came down again, and ran down between the frames. I tell you, I put on the top.

Just at this point a book agent came to show me his book. I was just then in a peculiarly good humor, and I had just fifteen minutes to spare, you know, or I would have kicked him out of the apiary, as the last book agent cheated me out of \$6.00; so I suffered him to rattle over his well learned lingo until the 15 minutes were up, then I dismissed him and went back to my tested queen. We found that the bees were trying to kill her. Two or three of them just *doubled up* on her. This frightened us of course, and Mrs. Miles cried (she stood near now with a veil) “O! they are stinging her! take her away,” and so I did, getting her into my closed hand together with the two bees that were sticking to her. Well, as we were trying to get her into the cage, I killed her with my clumsy fingers; so there lay my darling queen, in her dying agonies, in the palm of my hand. I would like to have cried then, but tears *would not come* to my relief. Mrs. M. consoled me very much by saying, “She would have died anyhow, from the stings she had got.” At this, I dropped her into the top of the hive, and we both rose from our knees and walked over to our dollar queen, the other side of the small apiary, to see how she was being received, being determined that we would not kill her in the same way.

Now judge of our surprise, our disgust and mortification, (just then a neighbor came in) to find no bees, and no queen in the hive! This was too much. I felt for my knife. It was not there. I looked around for some means or way of self destruction, but nothing suitable appeared. So I dropped down on the grass. Mrs. M. comforted me again at this critical point, by saying, “*You have me left yet.*” After waiting there about half an hour for our queen to come back, we got up and went to see if the Italian that I had killed was yet to be found. I lifted the cloth, and there was a ball of bees which I picked up, and, in the middle of it, *was a yellow queen!* We got her into the cage safe you may be sure, put it over the frames, and closed the hive, and felt like calling our friends and neighbors together, saying “Rejoice with us,” &c. To-day, I let her out and they received her all right. I have look-

ed several times. They are pulling down queen cells.

Later.—The queen is laying.

I have been reading GLEANINGS and have learned why that dollar queen went over to the hive where I had just killed my tested queen, rather than to any other. I had concluded that it was just a streak of good luck mixed with the bad, but it was because they were making such an uproar after the disappearance of the queen,—a reason you gave Mr. J. H. Johnson, in Sept. No., for a similar action.

And I learned more. A common tin pail nursery is just what I am going to use next summer. I don't need to look at it so often, when I am busy on the farm.

MORE ABOUT MITCHELL'S BOARDS.

I want to tell you why I decided it would pay me to subscribe for GLEANINGS.

One of Mitchell's agents threatened to prosecute me and others, for making and using “Mitchell's Patent Adjustable Hive,” as he called my store goods boxes with movable division boards. I told him I could not raise bees without the adjustable boards, in my long hives.

“Then buy a farm right,” was his reply, “which I will sell you for \$5.00. Mitchell's price is \$10.00.”

I had not money enough, or I should certainly have bought the right. I told him I would as soon as I could, and, in the meanwhile, I would throw out the boards. At this, he let me off. Some time after this, W. J. Atkins (a subscriber of yours) told me there was no patent on them, but he did not seem to know certainly, so I sent for an A B C. I found plenty in that about the boards, but nothing about the patent. I then sent for a specimen GLEANINGS. You sent me the July number, in which he and his patent were ventilated in the department of humbugs.

So you see this specimen copy saved me \$5.00; and, thinking that I might be benefited in the course of a year to the full cost of the journal, I subscribed, and I believe I have been profited since fully one dollar besides the five. C. R. MILES.

Pawnee City, Neb., Sept. 7, 1879.

QUEENS FROM THE EGG VS. QUEENS FROM WORKER LARVÆ.

MY experience and observations for the past five or six years have led me to the conclusion that much more is lost by our artificial modes of queen rearing than is generally admitted. Artificial *versus* natural queens was the subject of much discussion in the papers several years ago. Strong stocks, with bees of all ages and brood in all stages, were then considered, by some at least, the principal requirement in order to get prolific and hardy queens artificially; but it is now a well known fact that even such stocks, when suddenly and unexpectedly deprived of their queen, in their unscrupulous haste to replace her, will often rear queens(?) from larvæ that have been partially developed into workers. As these larvæ are several days old when their treatment as queens begins, they sometimes hatch within 8 or 10 days from that time, whereas, the time from the hatching of the egg should be 13 or 14 days.

In *The Bee-Keepers' Magazine*, Vol. 2, page 192, E. Gallup says: “Now, about the 8 day queens; we have raised in all some sixteen. In every case, the bees had eggs, larvæ just hatched, and larvæ just ready to seal. Nine of those queens we have kept

until they have died of old age, and not one of them has lived 4 months. Some of them have been very prolific for the first 6 weeks, and then gradually failed or were superseded, and some of them commenced failing in 5 weeks.

"Nine-day queens we have had in any quantity, and ten-day queens also. Our nine-day queens that we kept for experiment have invariably failed towards the latter part of the second season, and our ten-day queens have miserably failed toward the latter part of the third season."

In *A. B. J.*, Vol. 7, page 101, H. Alley says: "During the month of June, when the honey harvest was at its height, I removed the queens from two of the fullest colonies I had. The result was, 60 odd cells were built, about 20 producing good large queens; from the rest came the smallest queens I ever saw. The large queens were raised from larvæ just hatching, whereas, the small queens were reared from larvæ just about ready to be sealed up when the old queens were removed."

On page 113, same number, John M. Price says: "The result of my experiments with natural as against artificial queens is, that I prefer to raise and keep one natural queen with any two of the best artificial queens that I have as yet been able to raise."

If we examine a hive before natural swarming, we will find perfectly formed queen cells, in the shape of acorn cups. As swarming time approaches, a tiny white egg will be found beautifully attached to the bottom of each. In due time, this "predestinated" queen egg hatches, and, from the first moment, the larva never tastes one atom of other than royal jelly. O skillful nature! how beautifully perfect are all thy works! Let not bungling man presume to equal thee, while disobeying thy law.

We are rearing queens by the prescribed rules. We deprive a colony of its queen, and provide them with only "very young" larvæ, say none more than 12 hours old.

It will take 24 hours more or less for the bees to discover their loss, abandon the fruitless search, become resigned to their fate, and get the royal jelly prepared ready for business. (I have never known cells to be started within 24 hours, but have had them neglect this seemingly disagreeable task until the first lot of larvæ was all sealed up.) Our oldest larvæ are now 36 hours old, and have made nearly $\frac{1}{2}$ (just 36-79) of their growth into workers. (See "Bees; How They Grow," in "A B C.") They are also swimming in the milky paste on which they are fed, and, if I am correct, this is not removed but simply added to by the royal jelly; so that our queens are only partially developed as such after all.

I do not say that all queens raised by the rules will be inferior, but I do claim that a large proportion of them will not be treated with royal jelly from the egg; and, as it is the characteristic of this substance to develop the ovary, it is plain that any deficiency of it cannot result in the perfect development of that "chief end" of the queen. As the process is repeated from one generation to the other, by our breeders, the effect soon becomes very marked; our Italians become "Americanized," and we are obliged to get a new importation from Italy, where nature raises her own queens up to within, probably, one or two generations of importation.

I should say the transposition process is an improvement, but, even in this case, the jelly in which the larvæ are deposited is probably only a mixture

of royal and worker jelly, and, though the larvæ are only a few hours old, they will have been treated during those few hours as workers and cannot produce perfect queens.

In conclusion, let us find a process by which we can raise queens from the egg. In the meantime, let us have imported queens, and all others designed for breeding purposes, raised from cells produced by natural swarming.

Until we do this, my word for it, we need expect no improvement in the race of our bees.

Mt. Vernon, Ia., Sept. 10, '79. OLIVER FOSTER.

There is much that is good in the above, friend F., but pardon me for suggesting that there is too much theory and quoting from others, and too little of your own work. All the way through, I watched to find where you had compared natural swarming with artificial swarming, in your own apiary or neighborhood. A great many of our beekeepers practice natural swarming, and theory would say that their queens should prove better than their neighbors' who raise their queens artificially. For years, we have been asked to note if this was the fact. Quinby first said he could see no difference; and no one has been able since, to contradict him by actual practice. Again; hunt out the most prolific queen in an apiary, and you are just as likely to find a small queen, as you are to find a large one. Friend F., I fear you have not looked sharp; our bees mass the royal jelly on worker larvæ, in less than twelve hours after the hive is made queenless. Again; we often raise queen cells by giving a queenless stock nothing but new laid eggs to build them over. In such a case, every egg, a little before it hatches, if I am not mistaken, is covered with the milky food. Could they do any more with an egg that was laid in a queen cell as in natural swarming? Queens raised from larvæ just before it is sealed up, we all know, are only about half queens, and the other half workers, and that such only lay eggs for a few weeks. I do not think a good colony of bees often chooses such larvæ; for, by looking at queen cells just started, you can easily see how large they are. Here on the honey farm, we have the whole matter constantly before our eyes, a great part of the year. Grafting cells already filled with royal jelly, certainly gives the young larva a much greater amount of this royal food, but I do not think the queens particularly superior for that reason.

SPRING DWINDLING.

IN the Sept. No. of GLEANINGS, after giving Bollen's theory of spring dwindling, you say, "What do the rest who have had the dwindling say to it?" As I had a fair share of it last spring, having lost only 50 stocks, I have a few words to offer, and will give the case of one particular stock. It was a fairly strong stock of hybrids, and kept so until after breeding had well started, and in March and early April it was, perhaps, as strong as any I had. I think it was early in April, when I took a frame of capped brood from it and gave it to another, thinking it could well spare the brood without injury; but the latter part of April, I noticed it was dwindling, and before I really knew it, it got very

weak, so that much of the capped brood died for want of bees to keep it warm. I tried to nurse it through, but—"no go;" or rather, *o' go*, for they all went somewhere and never returned.

I was stating my case to one man, and he remarked, "Well, I would have pinched that queen's head off very soon." I am sure, however, it was no fault of the queen, for, as they kept dwindling, she kept filling in the eggs. The last time I saw her, she had but about 50 bees and a spot of an inch or so of brood, and the cells around the brood were, some of them, nearly half full of eggs. She had done her best to fulfill her duty. There was at all times plenty of honey, and no disease about the hive, and no dead bees, to speak of.

Now, I have a theory which I think will explain just why this colony dwindled and where all the bees, or nearly all, went to, and shall propose an experiment which I shall try myself, and which I hope others will try also, as it will cost but a few cents. I think it will prevent to a great extent, if not entirely, such fearful spring dwindling; but it will be too long for this article, so I will stop here, and give the cause next month, and the remedy still later.

A. A. FRADENBURG.

Port Washington, O., Sept. 22, 1879.

THE HOME OF THE HONEY BEES.

AN APIARY OF 500 HIVES.

ISN'T it pretty? Had you worked and planned and studied over it as we have, dear reader, you might perhaps appreciate it in a different way from what you do, but I am pretty sure you admire it any way. You observe there are 6 apiaries surrounding a central one, making 7 in all. There are 61 hives in each apiary, and the small apiaries of 7 hives each, in the corners, make the number nearly 500. The hives in each apiary are exactly 7 feet from centre to centre, and the streets are 24 feet broad. The gravel walks in the centre of each street are 4 feet wide. The hives face different points of the compass, as I explained in the June No. Coal cinders are placed around each hive to keep the weeds down, and then the space before and around the entrance is covered with clean, white sand. This is not only to give the bees a clean and pleasant dooryard, but it is to enable us, in passing, to see if all is right. For instance, if robbing has been going on, you will see the dead bees on the white sand, even if you are quite a distance away. Day before yesterday, in passing, I saw a young queen on the sand near the entrance of a hive, and out near the grass was another one.

"Hallo, Will," said I, "what does this mean?"

"Oh! I forgot to cut out those queen cells," said he, and he opened the hive "quicker," and found nine good cells, and two torn down. You see the white sand saved me 9 queen cells, that one time.

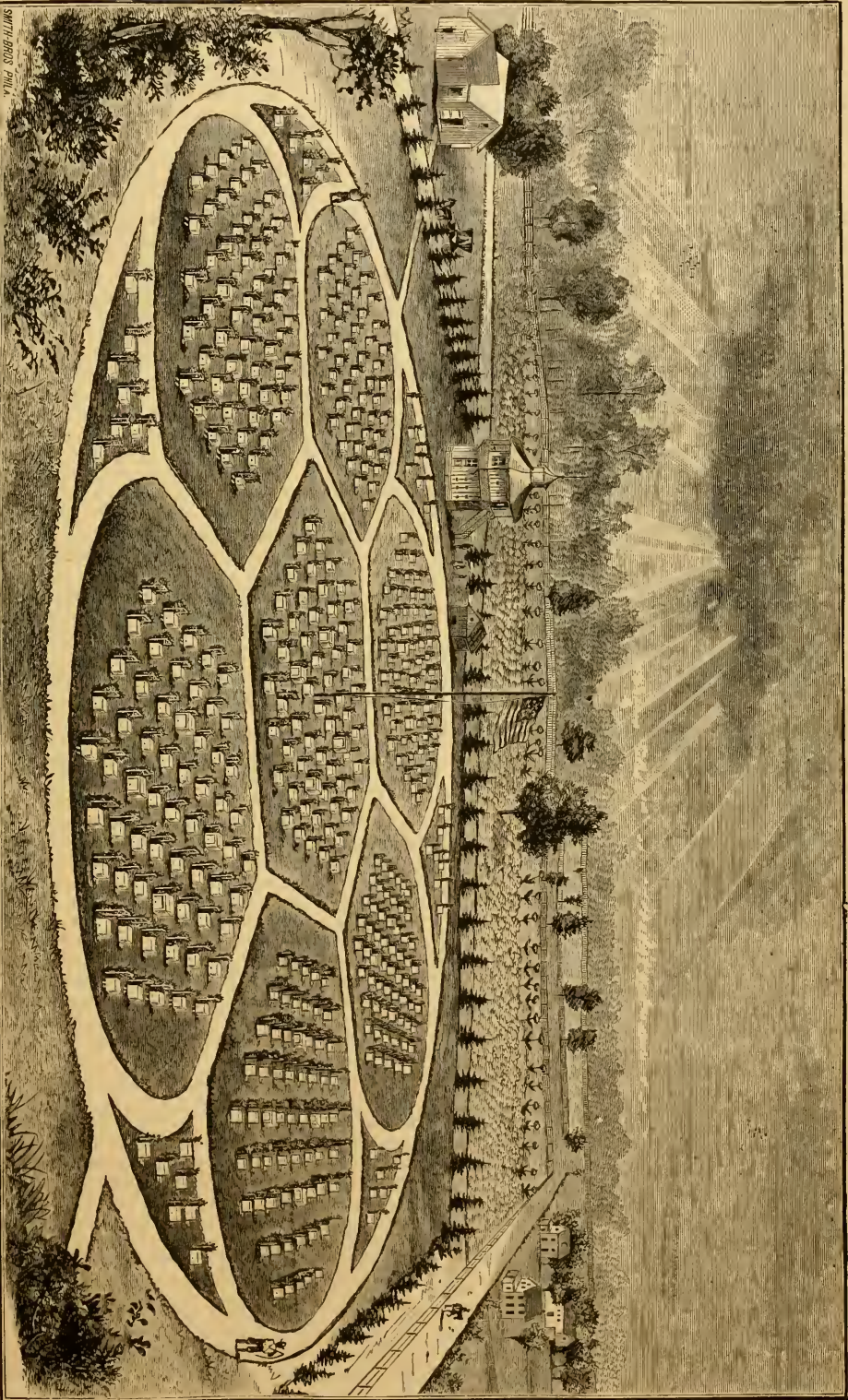
The grass is all kept in nice trim, with the lawn mower, and the labor is very much less, for so large an apiary, than to keep the ground clean with a hoe, as I have formerly recommended. It is now the middle of October, but the grass, in consequence of the frequent mowings, is as fresh and green as in June. To add to the beauty of it, dandelions have sprung up, and their bright yellow blossoms dotting the green here and there make a prettier picture than I can describe, especially as one or more Italians are found on every blossom, on pleasant days.

On the outside of the row of evergreens,

which are planted for a wind break, is a carriage drive, and this drive extends off to the south, down by the pond, and through my creek bottom garden, which I have been telling you about. We planted 100 evergreens, and but five of them died, and the nurseryman says he will replace those. Of 500 grape vines, planted last fall, I believe only about 7 died. The building with the wings is the honey house, as we call it. There we store all the tools and implements, all the empty hives, the sugar for feeding, &c. We are talking of a rail-road to run through the apiary into this house, but the light wheel-barrow seems to answer so well, we may not build it.

You will notice that the house apiary has changed so much, that one would hardly recognize an old acquaintance. To Mr. Gray is the credit due, for having made it so pretty, and so convenient for the bees, which we are just putting in the upper story. The old wood roof used to leak some, and so we have put on a tin one. Leaking is a very bad feature for any roof, for hive or building. Tin, if kept painted, makes a sure thing of it. The chaff tenement hive looks as large as life, or a little larger, and perhaps "twice as natural." You will observe, in the centre of each apiary, or near the centre, 4 chaff hives. These are to assist in giving landmarks, both to the bees and the apiarist. Just now, we are giving chaff hives to all that we decide to winter. The apiary is not full of hives, as represented in the cut, but we number, house apiary and all, just 314. About 200 will probably be preserved for wintering. The balance we shall keep for those who want a queen very late; and, after the queen is sold, they will be united with others. The grape vines, this season (the first), have been trained on a single stake, but they have made such a healthy growth, especially those which have been mowed around with the lawn mower, that we shall have to get out 500 trellises, ready for next June.

I wanted the artist to get the inscription on the flag, but the letters would have been so small, you probably could not have read it. Instead of a dozen or more rows of mammoth sunflowers, he has made only one, and these resemble some tropical plant, more than those out in the field. The masses of foliage this side of the sunflowers represent the borage. It is yet in full bloom, and covered fairly with bees from morning till night, but nothing like the Simpson honey plant, and the spider flowers. The spider flowers are growing right down at the right hand corner; the Simpson plant, at the upper right hand corner of the honey farm. The highway, where the man is riding along on horse back, runs east and west. I wish I could take you down by the pond and show you my creek bottom garden; perhaps I will some day. I was at work in it this morning, with my hoe, so early that I had to work by the light of the stars. I knelt in the soft rich ground (where the cultivator had been running the night before among the plants) and thanked God for this honey farm, and the opportunities it gives me of helping you all.



THE HOME OF THE HONEY BEES—THE APIARY.
[This view is taken from the roof of the factory.]

CALIFORNIA AS A BEE KEEPING STATE.

ARTICLE NO. 3.

WHITE SAGE.

DEAR GLEANINGS:—I have taken considerable trouble to find out about the white sage, the great honey producing plant of southern California.

In the first place, the locality or soil determines late or early blossoming (that is within a bee's flight, or in the vicinity of an apiary), and not the height of the mountains, as many suppose. The earliest blossoms are either high up on the mountains, among the rocks or gravel, or in the valley on very sandy soil. On rich, black soil, it grows so much larger that it blossoms quite late. Then again, on the north side of a deep gorge or canyon, it will blossom early; while, on the south side, where the sun does not shine but two or three hours in the day, it blossoms very late.

Inside of a square mile, there may be a dozen different kinds of soil, and all at about the same altitude. It grows from 2 to 14 feet in height, and a root will occupy from 6 inches to 6 feet in diameter, and send up from one to a dozen blossoming stalks, the number depending mostly upon locality and soil. If fire runs over the country, as it did in many localities last season, it spoils the blossoms for the next season, as this season's growth produces the blossoms next season.

In the Ojai (pronounced Oh-i) and Tar Creek valleys, the season is later than in the Sespe or Santa Clara valleys. In the upper valleys, they have some frost and sometimes a little snow; still the season is about the same in length for honey. If bees could be kept down in the valley in the fall and spring, and moved up into the white sage country during its blossoming, the bee season would be prolonged from February to November; but moving bees is quite a task.

E. GALLUP.

Sezenega, Ventura Co., Cal., Aug. 26, 1879.

WHENCE COMETH THE HONEY DEW.

THE following was clipped from the Lewiston (Me.) Journal:

Will you allow me space in your valuable paper to ask a question, as well as offer a few statements for the benefit of bee keepers? The question I wish to ask is, whence comes the honey-dew? Webster defines the word honey dew as "a sweet saccharine substance, found on the leaves of plants in small drops," which, as applied to this section of the country is a misnomer.

My attention was first called to this subject, during a period of dry, hot weather in August, 1873, by increased activity of my bees. Noticing that they worked early and late and were storing honey rapidly, I sought for the source of these stores of honey and found they got it from the leaves of beech trees, where it had collected in large drops. I have noticed it nearly every season since, and have never seen a particle on any other leaf except beech, unless they were in close proximity, and were covered by the dropping from the beech leaves above. Now what causes this sweet deposit, and why is it not found on the leaves of the maple and other forest trees as well as the beech? I once thought I had traced the cause of this sweet deposit to a species

of green fly, but have come to the conclusion that I was mistaken; for it would take myriads to produce the quantities I have noticed on the leaves of a single beech tree. Perhaps my assertion that it is confined to beech trees only may be doubted, but as the season for its appearance is close at hand, I invite bee keepers to investigate for themselves and see if my statements are not correct.

A few facts now as to its effects on bees. The winter following the summer when it was so plenty, there was great mortality among the bees in this section. Mr. Blaisdell, the Aroostook honey man, losing his entire stock of upwards of thirty swarms, and others all, or nearly all; while at Limestone and other places near burned forests abounding in fire weed and away from beech trees, they wintered, entirely free from the dysentery that destroyed ours. The same results have followed in seasons of an abundance of honey dew since; the swarms that came out late being sure to die before spring, while the swarms that had plenty of honey in the hives and little room to store the honey dew wintered well. I have had swarms die in mid-winter with an abundance of honey, but every particle sour, and they were in hives stored with honey dew every time. The same results have followed feeding honey stored in boxes during the periods named; and so well are its effects known to bee keepers in this section, that frequent rains during August and September, to wash away the deposit, are looked upon by them as special blessings. Hoping these few lines may induce some one to give the true cause of honey dew, I will close.

L. W. REED.

Westfield, Aroostook Co., Me., July 29, 1879.

GLEN OAK APIARY.

THE YUCCA.

THE yucca, which your brother writes you about, is plentiful around my apiary, but has this season yielded neither pollen nor honey, and I do not think it is a honey plant. Without the flower stem, it is an insignificant plant, but with it, is one of great beauty. Its hundreds of beautiful, pendant, white cups are so thick that, at a distance, it looks like a pole with a white cap. The green leaves only rise a few inches from the ground, but the stalk, two and three inches through, often rises six feet high before a flower appears. The natives chew the stalk, which has a great deal of moisture in it, to allay extreme thirst; as, in this dry country, one is often at a loss to find water when needed. The flower stem seems to run up almost in a night, so rapid is its growth.

Belonging to the same family is the Spanish Bayonet Plant [see drawings on p. 137, Apr. No.], though it is essentially different from the plant of the same name in Florida, and more resembles what is commonly called bear grass, in Virginia and N. Carolina. Its flower is similar to the yucca, but does not grow so high. Of the yucca, I am sure, if you would get a bulb, in the spring, and plant it in a very dry place, it would meet your expectations in point of beauty, if not in honey. It is never seen growing in the valleys, but on the driest sides of the mountains.

CALIFORNIA AS A HONEY STATE.

As you are aware, this season is a most disastrous one, and the worst has not yet come, I fear. One of my neighbors has already lost 33 per cent out of a large apiary, and many are quitting the business.

If any of your eastern men are of the same opinion as Mr. Gallup, that there's money in the business here, now is the time for them to come out, as bees can be bought at their own price. The great drawback to the business here is, that you and your family are debarred from all social advantages, and lead the life of hermits, doing every kind of home drudgery yourselves, as employing help is out of all question here. Like Mr. Gallup, I *hope* there's money in the business, but what's the use in praising it up, as most of your correspondents do, when the facts won't bear them out? The truth won't hurt any one if truthfully told. Well, the truth about the honey business here is about this: With the exception of those who are here for their health, I I don't know of a man but would gladly get out of the business if he could, even at a sacrifice. Not a man have I met, who can call himself out of debt; on the contrary, most of them are as deeply in debt to their merchants, as are the cotton farmers of the South.

Personally, I am perfectly satisfied here, and hope to make a success of it. I only speak above of the actual condition of things at present. The future must be brighter for us, for we will learn to avoid the stumbling blocks by past experience, and not borrow so largely of it. My apiary consists of 215 stocks in Simplicity hives; but, if I save 150 for next season, I will be satisfied.

HONEY FROM THE OAK.

At present, they seem to be making a living of what is called honey dew, but it is not a true honey dew. It seems to be a sweetish exudation from the *acorn* on the live oaks, just where the acorn and cup join. I can discover no insect or hole in the acorn, and as the acorn invariably turns black and drops off, it may be a disease.

A parasitic vine, here commonly called love vine, has helped us out materially this season, as the bees have been working on it constantly for the last three months.

COMB FOUNDATION IN CALIFORNIA.

I have been fortunate enough to secure some 500 frames of comb from *fdn.*, early in the season, and when its utility becomes well recognized here, your orders for machines will be large. I have been bothered with no sagging, and combs built from it are much more perfect than I ever had before. Your machine works like a charm. As you say, we can roll out *fdn.*, by the mile. Mine is always made in long rolls of 15 to 40 feet, as the economy of trimming is so much greater. For dipping, I find wooden boards of inch thickness (*not thinner*), much preferable to your metal sheets.

ARRANGEMENT OF APIARY.

My arrangement of hives is quite different from any thing I have seen, and has its advantages. They are placed in eights, so that each couple fly in different directions. One can stand in one position, and manipulate two hives, and neither cart nor man be in the way of flying bees.

San Diego, Cal.

RUFUS MORGAN.

I think, friend M., that California, as well as almost every other locality, needs energy to go with its natural advantages as a honey state. You are doubtless correct in regard to the cause of the honey found on the oak; the matter has been discussed before, in our back volumes. It is not honey dew. Very glad to hear the *fdn.* mill pleases.

REARING FERTILE, LAYING QUEENS, IN A HIVE CONTAINING A FERTILE, LAYING QUEEN.

CAN IT NOT BE DONE?

WHILE the reader please turn to page 361, Sept. No. 2. Now, read the item headed "Two Queens in One Hive," and my comments upon it. Then read the following:

A NEW FEATURE IN QUEEN REARING.

The last queen you sent me is a clipper; although she cost only \$1.25, I could not wish a better one. I wrote you last month that I had two queens in one hive. I took the young one out and gave her to another hive, and she is the largest queen I have, and very prolific. Well, there are two queens in the same hive again, and both laying queens. I was looking through the hive yesterday and saw the young queen laying. She is like her sister, very large. They are both daughters of the \$3.00 queen you sent me this spring. J. J. WHITE.

Clinton, Mich., Aug. 19, 1879.

Now all we have to do is to develop the disposition of the bees reared by this queen, and we are done with the troubles of queen rearing, and also with artificial queens; are we not, friend Foster? See page 436. I wonder if friend Hasty has time to leave his clover heads long enough to take such a queen, and produce plenty of queens that would always have a sister or two in the hive with her, when swarming time came. Friend White, I will give you \$10.00 for the queen just as she is now, and if she raises a third daughter while she remains prolific and fertile, I will give you \$25.00 for her. You see I will have an apiary then, all alone by myself; and how do you know I shall not get a race of queens that won't kill each other at all, but "let love through all their actions run, and all their 'ways' be mild."

HOW FAR WILL BEES GO FOR HONEY?

THE precise distance that bees will fly in search of forage, I am unable to state. Some consider three miles to be the extreme limit, while others place it as high as twelve miles. The most satisfactory results may be expected, if abundant stores can be found within two miles. It is evident that they will work more freely upon blossoms at some little distance, than when these are very near the apiary. If I were to sow anything with a view to a supply of honey, I should prefer that it should not be in the immediate vicinity of the hives. Their flights are evidently modified by local conditions. During the large yield from basswood in 1874, as the blossoms failed in the valley, the bees continued bringing in the same quality of honey, following the basswood day by day, as it opened on the hills, until the first week in August, when they still came in heavily loaded, but very tired from a long flight. I drove to the heights, six miles distant, and found that basswood was there just coming into bloom. I immediately moved 48 swarms to this location, and in the following week these 48 colonies gave me one ton of surplus honey, while the 71 swarms left at home, did not secure one-half that amount, yet they continued working upon the same ground during the entire period. This is a fine illustration of the advantage of obtaining forage within a reasonably

short distance. I have never had direct proof to the effect, yet there is ground for the belief that if honey could not be found nearer, bees would not fly the distance named, without being gradually led along by newly opening blossoms as in the case mentioned.—*Quinby's New Bee-Keeping.*

A REMINDER.

GETTING BEES READY FOR WINTER.

FRIEND ROOT:—In GLEANINGS, Vol. VII, No. 4, p. 123, you request me to remind you to turn to that page about next Nov. My name has been so often brought before the public in connection with chaff packing, that I very much dislike to say anything farther in relation to it, but prefer rather to leave the discussion of its merits and demerits to others who have given, and are giving, it a trial, feeling confident, not only from my own experience but also from what information I get from other sources both public and private, that, notwithstanding the inconvenience of using heavy, bungling, chaff packed hives, the day is not far distant, when, in the northern states, the plan of keeping bees on their summer stands, packed in chaff summer and winter, always prepared in a moment's time for either, will be quite generally if not nearly universally adopted. But, Mr Editor, is not Nov. rather late? we sometimes have quite severe winter weather in Oct., and I prefer to have the bees prepared for winter before such weather comes; neither do I like making up wintering colonies by uniting small, queen raising stocks; or taking brood from strong colonies to build up weak ones, later than about the first of August. In fact, I prefer to disturb the brood department of stocks intended for wintering, as little as possible after that date. Perhaps it may be a conceit of mine, but I imagine at least, that such stocks usually winter best. How was it with your house apiary last year, as compared with the bees out doors? If you must make up stocks for wintering later, crowd the hive with bees, leave off the enameled cloth, put duck, carpeting, or some better conductor of moisture in its place on the frames, put on the chaff cushion, or, what last winter's experience indicates as better, leave off the cushion and cover the frames with four or more inches of loose chaff. In short, put the bees in such shape that their own heat will make the interior of the hive so warm and dry that uncapped honey, in any part of it, will keep thick and waxy till spring, and I think you will have little cause to complain of spring dwindling. Mr. President, you are correct in saying that this "malady" affects young as well as old bees. I have known good stocks, composed largely of young bees hatched in the spring, to die off by the dozen, during the months of April and May. And now a question or two. Are not your young queens that are laying drone eggs in straight, smooth, worker comb, five cells to the inch, artificial queens? Did you ever know a natural queen to be guilty of any such "misdemeanor," unless she was old, and her time almost out?

J. H. TOWNLEY.

Tompkins, Mich., Oct. 14, 1879.

You are right, friend T.; when I asked you to remind me to read that passage in Nov., it was not that I expected to delay putting my bees in the chaff hives until then, but that I might remember my promise not to try to winter any more in Simplicity hives. The chaff hives have been made, with good tin roofs, and the bees were mostly put into

them some time ago. If bees that are strong and well filled up for winter are lifted out of Simplicity hives and set into chaff hives in Nov., or, in short, at any time in the winter. I think it would be better than not to be in chaff hives at all.

Some of our weak colonies have been used to keep queens until late in Nov., for the accommodation of those who are always wanting a queen late, to save some accidentally queenless colony. Now we shall have quite a number of stocks that are made up from these weak stocks, or nuclei, and rather than let them be lost, I shall try to unite and winter them, although I know from past experience it is rather a difficult matter. I hope, by profiting by past failures, I may be able to succeed better this winter with such stocks. I agree with you, friend T.; I would prefer to have stocks that had not been tinkered with and the combs mixed up, later than their last yield of honey; but, as we who raise queens for sale cannot well do this, we must take the consequences, for aught I see. I agree with you also, that loose chaff in the upper story of the hive is apt to make a better protection than the chaff cushion, but if the cushions are tucked down carefully, I think they may be at least nearly as good, and they are vastly more convenient in looking into a hive.

DRONES IN WORKER COMB.

I presume, friend T., your question refers to the occasional drones that I spoke of, in worker comb. It is not confined to artificial queens, and I think I can find an occasional drone in almost any hive, in the summer season, among black bees in box hives as well as Italians. If you, by careful looking, cannot do the same, please remind me of it the next time I come to see you.

Heads of Grain, From Different Fields.

CUTTING A "BEE TREE."

YOU say, in the Sept. No. of GLEANINGS, that you like to hear of cutting bee trees, so I will tell you how 3 men who work in the same shop with myself cut one a short time ago. They found the tree about 2 months ago, and have been talking about it ever since. They even contracted to deliver 25 lb. of honey to a party. They got permission to cut the tree on condition that they would cut and trim it into logs. They worked one night about 3 hours chopping it (it was a solid basswood tree, 2½ ft. through). After getting it down, they began looking for the entrance, and one of them, running his hand into a crotch, felt something peculiar, and calling for a lantern, the 3 bee-hunters found—not a nice lot of honey, but a large hornet's nest. You can imagine how they got away from there. Fortunately, none of them were stung, but they won't hear the last of it for some time to come.

F. H. WILMARTH.

Gloversville, N. Y., Sept. 15, 1879.

REPORT FROM AN A B C SCHOLAR.

I commenced a year ago last spring, with four swarms of blacks. I bought one late last fall, and bought three queens during the season, increased to 18, and took about 300 lbs. of surplus. I wintered my 18 all right, and increased this season to 52, all good, strong stocks, except 4 or 5 which I think I will double up, and have taken about 1000 lbs. of surplus honey. The season has not been very good here.

Merton, Mich., Sept. 17, '79.

HARVEY AUTON.

HONEY DEW HONEY.

I send you, by to-day's mail, a sample of granulated honey. It was collected by the bees in May and June, from common honey dew. It granulated very soon after they collected it, and it was, at first, white as A coffee sugar; but, from some unknown cause, it turned a little yellow, and, as you will discover, is melting now. This sample is just as it was collected by the bees. There is no adulteration in it, and I would like you to show the sample to as many of the experts as you can, and see how many will pronounce it pure, and give us the result in GLEANINGS. Quite a number of men here pronounce it grape sugar.

A. S. SMITH.

Atlanta, Ga., Oct. 15, 1879.

The honey is fair to the taste, but was quite soft when it reached us, being but little like grape sugar in taste or appearance. I think the bees would use it for winter stores if as soft as this. The taste is much the same as that of honey dew honey which has been sent us heretofore. On account of its strong taste, like molasses or brown sugar, I should fear dysentery, unless the bees could fly out almost daily.

WHERE DID THE QUEEN COME FROM?

The next day after sending my postal, the section boxes came to hand, all right, the freight being 75c. I have 400 on lives, and most are working very nicely. Nothing can be handsomer than those sections nicely filled with white clover honey. I have a query for you. On May 1st, I had one queenless hive. I inserted a frame of brood and watched it carefully, but no queen cell was built. As the swarm was quite weak and in a poor hive, I thought I would let them perish. Ten days ago, I saw they were working quite actively, and examined them. They were quite strong, and had three or four frames filled with capped brood. Where did they get a queen?

Salem Centre, Ind., July 5, '79. W. E. KIMSEY.

You say your hive was queenless. How do you know it was queenless? The very fact of their not starting cells on the brood you gave them seems to me to indicate that they had a young queen all the time; and, as soon as she became old enough, she began to lay.

"LAZY BEES" AND WHAT TO DO WITH THEM.

Friend Root:—I am vexed at my bees. I have them in L. hives, and have given them the best of care, and am in what I call a good location, there being plenty of white clover, basswood, &c. I gave them plenty of room and kept them well shaded, but they would lie out during clover bloom and ever since, and eat all the honey a few industrious bees gathered. I have ten stands, but they never reward me with a little honey to eat. I wintered so that I lost none. They were strong this spring, but they have given me but few swarms; some have not swarmed at all, and are strong colonies. I got my start from a couple of swarms that came into two L. hives I had sitting in the yard. One of them was a hybrid swarm and the other black. They came to me in 1876. The hybrids have about run out, so that I have nearly all blacks now. I like bee-keeping, but it has, so far, been an expense to me, without any returns. I think 10 colonies ought to pay for their hives and other expenses, and if you can tell me how to make them do it, and give me a surplus, I shall be truly grateful. I read all the bee literature I can get. I have "Langstroth on the Honey Bee," three numbers of the A B C, and take GLEANINGS and the A. B. J., but find nothing applicable to my case. Now, if you can tell me what to do, please say it and you will truly oblige.

HENRY J. ALVIS.

Montrose, Ia., Aug., 1879.

Friend A., the frame of sections which we advertise, I invented especially for such obdurate cases. I would put one of these frames of sections right into the midst of the colony, and, after they get well started at comb building in the sections, move them against the outside of the hive, having the tin separators turned toward the brood, of

course. When they get well to working on them, in this position, put on an upper story, and hang in it one or more of these frames which they have started, and they will stop loafing on the outside of the hives when there is honey to be gathered. I can assure you.

IS THERE DANGER OF BROOD IN THE SECTIONS?

Does the queen ever put eggs in upper story of your 1½ story hives?

SHORT L. FRAMES AND LONG ONES.

Do you think the full length Langstroth frame is as good as the short 13 1-2 inch frame, in the spring, for building up? Also, is the short as good as the long frame, after they are built up and are strong?

Libertyville, Mo., Aug. 13, '79.

J. B. DINES.

We very rarely find that the queen has used our small sections under any circumstances, and I have never known of eggs in the single tier of sections, on the 1½ story hives. We have used this season, frames running crosswise in the Simplicity hives, in one small apiary of hives, but I cannot see that nuclei have built up any faster with them, than with the usual L. frames. After they were built up, I have not been able to discover any better progress in brood rearing. I have always supposed we could build up nuclei better with the short frames; but, so far, practice has not seemed to corroborate the theory.

CHAFF HIVES BEST FOR SUMMER AS WELL AS WINTER.

Here is my report: I had, last fall, 22 stocks; this spring, 21; and from the defunct colony, one queen that I saved in a cage until May, then gave her to one of the other colonies that had lost their queen. My stocks, this fall, number 43, 3 or 4 of which are nucleus colonies on 4 frames, that I shall try to keep, as they have nice queens. I also took 1,600 lb. of extracted honey, ½ of it white clover; and, best of all, as much of it as I care to sell is sold. I always keep 100 or 200 lb. to feed in the spring, if I need it. Chaff Hives are best for summer use (I had 11 in use), and I hope now they will prove as good for winter. Many persons have lost bees by worms this summer. All box hive men say that this is the poorest season for 20 years. Many of them lost almost all their bees last winter, and what they had left made neither honey nor increase, and ½ of them succumbed to the worms; so that, taking all in all, they are pretty well discouraged, and want to sell out. Next spring, I think there won't be a very large stock of bees around here. If mine only live I won't care much, as it is almost impossible to get my queens mated right, there are so many black drones.

B. F. PRATT.

Dixon, Ill., Oct. 12, 1879.

AN A B C SCHOLAR'S TRIALS IN INTRODUCING.

I am one of your A B C scholars, and, if I am not intruding too much on your time, I will give you my little say. I began last spring, with 5 colonies, one being queenless. I now have 11 colonies. The progeny of the little, dark colored queen I purchased at your establishment in May are very handsome yellow Italians. I tried in vain to introduce her in my queenless colony; they balled her every time that I released her. I found a little worker brood in the hive. I then united them with another colony, and smoked them thoroughly, but still there was war. I removed the queen from another hive, and was successful in introducing the purchased queen. I love to be among the bees, and shall see that they go in to winter quarters well supplied.

Wooster, O., Aug. 27, '79.

P. S. IHRIIG.

THOSE NICE HAMMERS.

I was going to say something about that nice hammer, but Mrs. E., who takes such a lively interest in "Novice and Blue Eyes," has just come into the room, and says I must not mention hammer. I suppose you have heard the saying about the "wink and nod to the horse that could not see."

Stateburg, S. Ca., Oct. 7, 1879.

W. J. ELLISON.

HONEY CANDYING IN THE CELLS DURING WARM WEATHER.

In many of our strong swarms, the honey has granulated, presenting a very white appearance, and, in some instances, when the cells are reversed, the granulated honey will run out like grains of wheat. Much of it is quite solid, and most beautiful in taste. We have never witnessed the like before in warm weather. The question is, will this granulated honey return to its natural state, as when gathered? If not, will the bees winter on it? A. F. MOON.

Rome, Georgia, Aug. 15th, 1879.

I should be inclined to think the bees would use it for brood rearing in warm weather, but if it is solid in warm weather, I should be afraid of it for winter stores. I have known bees to tumble out the candied honey in winter, in their search for moisture. The hardening in the cells is the difficulty with pure grape sugar, and this hardened honey must be very nearly identical with pure grape sugar. If you can shake out these grains, or throw them out with the extractor, and add some cane sugar to them, as I directed last month, it will probably make them permanently liquid.

ITALIANS KILLING OFF THE BLACKS AGAIN.

I am in search of light. I bought several queens of you this season, and introduced them all successfully; but, think of my surprise, after they had filled their hives with Italians, and become very strong, when the Italians commenced killing off the blacks, dragging them out, carrying them off, and leaving thousands of them in the yard! This occurrence is so strange that I want some information on the subject. The word bee sounds very small, but their true nature is certainly a very deep subject, and one that will take years to comprehend. This occurrence seemed to me so unnatural, that I must confess it gave me some trouble. Bees have done but little in the way of honey, but have strong colonies. I think I will be able to go into winter with fair prospects. JACKSON WILLS.

Greenfield, Ind., Aug. 21, 1879.

You will see on page 401 of last month's journal, what I think of this charge against the Italians, friend W., and even now, I must think it is for some other reason than their color, that the blacks are seemingly expelled. Are you sure it is anything more than bees that have died of old age? The young bees are all Italians, and the old ones all blacks; may not this fact have something to do with it? Can we believe it possible that the bees themselves have any partiality for those of their own color? This would be giving them more intelligence than I should feel like ascribing to the wonderful little fellows. May it not be that the blacks were exercising their natural disposition to rob, and the Italians being the better fighters drove and killed the blacks? It is also quite difficult to tell whether a dead bee is an Italian or black, as the body is usually so contracted that the yellow rings do not show much, if any.

IS IT FOUL BROOD?

I wish to ask you some questions concerning bees, as I see you are always ready to help beginners. I discovered one of my colonies dwindling, and, on examination, found what I supposed was foul brood, and destroyed hive, bees, and all. Since then, I have read more concerning the disease, and now question in my mind whether or not it was really foul brood. The brood combs were filled with brood, about one half of which was dead. They were in all stages of development, from the egg to the full grown bee ready to gnaw out. I handled the frames, but noticed no disagreeable smell. Some of the capped cells were slightly sunken, but those further developed

were full and round. The combs were about five years old and pretty hard. I found, in another hive, the same thing on a small scale, and found that the frames affected were those taken from the old hive, with brood, for holding the new swarm. I cut out the cells with dead brood, and did not destroy the whole comb. Friday, I examined this hive and found all traces of the disease gone, but it was entirely destitute of brood. Now, why was there no brood? and what do you think of the case? I bought an atomizer and salicylic acid. Would it do any harm to use it on combs which are questionable?

I started last spring with 16 colonies and now have 19; 18 are very good, with plenty of honey and plenty of bees. I think one cannot afford to sell comb honey for 20c., so I wish you would send me an extractor. I would be proud to show you my home made section boxes plump full of clover and basswood honey, as white as snow. Thirty of the finest came from a swarm two months old. H. O. MACK.

Benzonia, Mich., Aug. 18, 1879.

I am inclined to think it was foul brood, in one of its milder forms, friend M., but we may be mistaken, and the dead brood you found may have been due to some other cause. The application of salicylic acid would do no harm in any case. I should be very glad to see your nice sections of honey, but we think here, that 20c. is a pretty good price, when every thing else is so low.

HOW AN A B C SCHOLAR "CAME TO GRIEF," BUT FINALLY SUCCEEDED, AFTER ALL.

I received the queen in good condition and successfully introduced her. I got into a fearful muss, however, overhauling the hive to find the black queen. The day was warm, and I selected a new swarm. The comb, being tender and full of honey, fell out of two frames, and I began to think all was up; but I closed up the hive, without the broken comb (there was some left in the two demolished frames), and put the queen cage, bees and all, on the hive, where I left her 60 hours, and then released her with her bees. They killed all the workers you sent in a few minutes. She was released on Friday, and was all right yesterday (Monday), for which I was very thankful. JAS. J. CHURCH.

Waterford, Canada, Aug. 19, 1879.

MORE ABOUT INTRODUCING QUEENS.

I have to ask a few questions again to-day, about introducing queens. First, I will tell you my experience with the queen I purchased from you. As soon as she came, I sat down and read your instructions carefully. After that, I put the cage, with the bees, right into the centre of the hive, to which I wished to introduce her. After leaving her 48 hours in that way, I released her, but she was balled by the bees at once. I took her out and caged her again for 24 hours; then I let her out, but the bees balled her again. Just at the same moment, there came a very heavy rain shower, so I had to let her go, and run for shelter, as soon as I had closed up the hive. It rained all day long, and I would not get wet and catch cold for all the queens in this world, so I left her balled up, to fight for her life as well as she could. The next day was pleasant, and I went for that hive to hunt up my certainly dead queen, but could not find her in front of the hive, so I looked over the frames inside; there she was, just as lively as any other bee, and had already deposited an egg here and there, just as if she had tried to see if she had not forgotten her profession, on her long confinement. Now for the questions: Do you think the bees try to kill her by balling her? Why don't they sting her as they do other strange bees? Or, do they just ball her (as we would do with a friend when he returns from a long trip) to show their joy and gladness? M. K.

Olmsted, Ill., Aug. 18, 1879.

Although your plan succeeded once, there is little probability of its succeeding again; for, although a queen sometimes holds out until they get ready to let her loose, it is the exception and not the rule. I am afraid my explanation as to why bees ball a strange queen will be something like the doctor's

explanation to the old lady, as to why some people are born deaf and dumb.

"My dear madam," said the Doctor, "it is owing to the fact that they are born destitute of a perfect development of the organs of hearing and speaking."

"La, me!" said she, "what a thing it is to have a physic edication. I have asked my old man that are question more than 40 times, and all the answer I can ever get out of him is, 'Caze they is.'"

I do not think it is because they love them, friend K., but rather because they consider them an enemy, much as they gather about a robber bee; also, because a strange queen always arouses a queer kind of excitement in a hive of bees.

THE HONEY SEASON IN GEORGIA, AND THAT COMB A "FOOT THICK."

The latter part of the season has been quite favorable. Rain began to fall about the 20th of July, giving life and vigor to the floral world, which caused it to bud and blossom, and the flowers seemed to contain their usual amount of nectar. About the first of Sept., bees began to swarm and continued for about ten days. To these swarms, we gave frames of brood and honey, which, with what they gathered, placed them in fine condition for winter quarters. Bees are still gathering considerable, and the most of them are in prime condition for winter.

The little piece of honey, mentioned by us, of the size of a cubic foot, is now nearly completed. It, with the casket in which it is completed, will weigh over one hundred pounds. Should our life and health continue, we will, at no distant day, compel them to make comb from eighteen to twenty-four inches thick. This, for me, would be more easily done than to raise queens that duplicate themselves every time.

A. F. MOON.

Rome, Ga., Sept., 1879.

DO BEES DESTROY GRAPES?

Friend Root:—You and perhaps all the readers of GLEANINGS have had the blessed bee denounced as a nuisance for the mischief it does to fruit, especially ripe grapes. I have heard them vehemently denounced for biting open and sucking out the juice of the grape. Well, I have one favorite grape vine that I have let run up to the top of a large cherry tree. I went to it one week ago, and found the bees roaring in it, as if it was in full bloom. What could they be getting? Some were sucking the juice out of the grapes, and some were running over the bunches of grapes, evidently hunting something. On examination, I found some grapes punctured with a small round hole, as if with a pin. I selected a nice, handsome, ripe bunch, went to a hive, opened it, laid the cushion back, and placed the grapes right on the bees. They examined it closely; that was all. I left it on 24 hours; then opened the hive, and found the grapes all perfect. I then took a sharp nail, punctured one-half of the grapes, put the bunch back as before, and they commenced sucking the juice before I got the hive closed. I left it 24 hours, then opened the hive again, and found those grapes which had been punctured completely used up; but the others were untouched. I have left them in a hive 3 days, and found them as nice and plump as ever. Now, if there are any doubting Thomases, let them go and do likewise. Seeing is believing.

J. ELLIOTT.

Easton, Wayne Co., O., Oct. 2, 1879.

But even seeing sometimes deceives us, friend E. You saw that the bees would not tear open whole grapes when placed in or near their hives, but I think, if you had looked a little farther, you would have found that some of them, at least, had learned the knack of tearing open sound grapes while on the tree, or vines. Bees can, with their strong mandibles, tear through a substance much stronger than the skin of a grape, when they set about it. I have often cut branches of basswood blossoms, and placed

them before the hives; but, although the trees were alive with them, they would pay no attention to those blossoms before the hives. The remedy for bees destroying grapes is to pick them, for the bees never tear them, until dead ripe; even then, they never molest them, unless there is a great dearth of pasturage. Give me sweet grapes, dead ripe, during a severe drouth, and I can teach almost any hive of hybrids or Italians to eat them.

MAKING THE BEES REAR DRONES OUT OF SEASON, AND DRONE BROOD BY MAIL.

I have been some time trying to get my Italian queen to lay in drone comb, and cannot succeed. I put the drone comb in the centre of the brood nest, and she would lay a few eggs and then stop, and the comb would get filled up with honey. I extracted it, but it did not do any good. Please inform me how I could get her to lay in the drone comb. If you can not, what would you charge me for a pound of drones? I would like to get some Italian queens fertilized by Italian drones.

M. H. MENDELSON.

Accord, N. Y., Aug. 19, 1879.

This is a very difficult matter, friend M., and I never, but once, succeeded to my full satisfaction in making bees rear drones, after the season was over. Then I fed a single colony a barrel of sugar, in Sept. and Oct. The combs, when filled and sealed, were given to other stocks, and the queen finally produced an abundance of drones, but it was rather an expensive experiment. Food must come in for some time, and in great plenty, to secure drone brood. The man who will succeed in having drone brood for sale, during the fall months, can get almost his own price for it. I think it might be sent by mail, from localities where fall pasturage is plenty.

WHY DON'T THEY SWARM? AND HONEY FROM SMART WEED.

I have four very strong swarms of bees. Three of them are common bees, and one is an Italian swarm. They have hung out all summer and have not swarmed yet. I have Simplicity tops on my hives and have taken 74 one-pound section boxes of honey from them. Please tell me the cause of their not swarming. They are working lively on smart weed, this morning. Is there any honey in smart weed?

Chillicothe, Ia., Aug. 18, '79.

JOSEPH BALL.

You have done fairly, friend B., according to the season, and your bees, in all probability, did not swarm because there has been so little honey for them to gather. You could easily have secured increase while they were hanging out, by artificial swarming, but you would, probably, have lost your honey crop by so doing, and perhaps would have been obliged to feed besides. Smart-weed does furnish a good deal of honey where there is plenty of it, more especially, the large kind called, in our seed catalogues, black heart.

FROM THE A B C SCHOLAR THAT "GREW SO FAST" LAST YEAR.

I have 28 swarms at present, all reared from 8 wintered. I have taken only 300lb. surplus comb honey this year. My hives are in good condition for winter—13 Italian swarms, and 15 blacks. I have sold all my comb honey at home, readily, for 20c. per lb. I have transferred 62 swarms this season, at \$1.00 each, and have become quite an expert at transferring. I would like to say to beginners, that it is very important to fill the frames full of comb, even if they have to use small pieces, as I find that most bees will not fill the space left in the old comb; if they do, they are apt to lap new comb by the old, instead of joining, thus making a double comb. I

think it unsafe to transfer bees at any season when comb building is not going on naturally. One year ago, I stated that I intended to have 50 colonies of Italian bees by this time. Owing to some office business, I could not attend to it as I should have liked, but I have 28 colonies in good condition, having increased this season from 8, and have taken 300 lb. surplus. I have accomplished this by artificial swarming, and giving all the fdn. they could use. I use the Dunham fdn., 5 feet to the lb., and have 200 sheets worked out, and have never had one break down. I have lost one Italian queen, by trying to introduce accompanying bees at the same time. Since then, I roll wire cloth around my finger, pinch one end together, put the queen in alone, put in a cork, place the cage, thus made, with the queen, between two combs, and leave 48 hours; then I pull out the cork, leaving the cage in place several days. The queen goes among the bees, when all is quiet. I have never lost one since doing this.

E. A. MORGAN, or
"The A B C Child That Grew So Fast."
Arcadia, Wis., Oct. 8, 1879.

SWEET POTATOES AS A SUBSTITUTE FOR POLLEN.

The sweet potato pollen seems to work all right so far. I mix potato and sugar, in equal weights, and bees eat it readily. Potatoes are steamed and dried off, then mashed, and mixed with a syrup as for feeding, and placed in flat boxes as you recommend for flour candy.

JOHN CROPCROFT,
Salem, Ind., Oct. 13, 1879.

Thanks, friend C. The idea of using sweet potatoes has been given before, some time ago, but not with sugar as you recommend. I hardly think I would use much of it in preparing bees for winter, but, toward spring, if the potatoes can be procured, you might use it safely. From their composition, we may expect them to furnish both starch and sugar, or, in other words, both honey and pollen. I should be careful about feeding such vegetable sweets in the fall, because I have seen so much bad work from sweet apples, sorghum, brown sugar, and the like.

THE FIBROUS MATERIAL IN BROOD COMBS.

In August No. of GLEANINGS, I noticed something concerning the composition of brood comb, and undertook to see if I could find out from whence the strange substance came. By close observation, I think that I have made the discovery. I went frequently to my observatory hive, and carefully watched the maneuvers of my busy pets, and noticed, while some were taking the wax from the little pockets, others were biting and pulling at the downy hair that grows on the bees. Now I think it is reasonable to conclude that this fine hair is what the bees use in the caps of brood comb. If they get the substance in question elsewhere, we certainly could discover the bees bringing it into the hive.

C. T. CLARK.

Bentonville, Ark., Oct. 14, 1879.

Your suggestion has been made before, friend C., but I cannot think the source you mention would furnish enough material for all the brood combs, and the cappings of both drone and worker brood. We have a couple of young microscopists among us, and I will set them at work at the problem at once.

PERSISTENT ABSCONDING.

I transferred a very strong colony about 3 weeks ago, and they seemed to be all right; but, to my surprise, they swarmed. I saved the swarm all right, then went to the hive and found it was the one that I had transferred just a week before. They had plenty of brood and fresh eggs. The next day, they came out again and I hived them in another hive, and still they were not satisfied. They started the third time, and I gave them still another hive. After I hived them the third time, I stopped their entrance, and in the evening I took about two-thirds of the bees and put them in the hive with their comb and brood and set it about 15 feet away; sure enough, next morning they came out again. I happened to be there when they started, so I closed

their entrance again and saved what was in the hive. I put them in with the others and they are doing right well. They have three queen cells started, one of which will hatch this week. They work right well now.

JACOB REITZ.

Millstadt, Ill., Sept. 4, 1879.

Once in awhile, we find a colony that, after some unusual disturbance, such as transferring, being brought home from the woods, or something of that kind, will persist in swarming out continually; and, in such cases, the very best thing we can do is to divide them up, and scatter the discontented bees around in well behaved colonies. In my experience, I have encountered one or two such. You did exactly the best thing, in my opinion.

CAN WE HAVE TOO MUCH BROOD, AND WIRED FRAMES FOR FOUNDATION.

My bees are rearing a large lot of brood from buckwheat, and some colonies have drones flying. Is that best for them? and when will they be likely to stop rearing brood, and give some honey in boxes? It has been a bad year with us, on account of being so dry. My bees did almost nothing in June and July, though they held their own until buckwheat bloomed, and they have been very busy ever since, as in spring. Some say Oct. is the best month in the year for honey. I hope it may prove so this time, for we have not had much yet. The queen I bought of Brown, of Augusta, Ga., I think is pure. She has done well since I introduced her. I think the fdn. I got from you is all worked out, and full of brood. I wired it successfully, and like it very much.

J. D. FOOSHE.

Greenwood, S. C., Sept. 8, 1879.

Let them rear the brood, friend F., and do not fear; I never yet saw too much brood at any time of the year. Brood means young bees, and young bees means honey, some time in the future. If they have reared brood largely in the fall, give them stores accordingly, and in the spring you will have a colony that will be capable of giving one of those great yields we hear about occasionally. I am glad to hear you have succeeded with the wires stretched in the frames. Our wired frames are beautiful, and we have no fear of their breaking in frosty weather or any other kind, no matter where the bees are shipped.

WHAT CONSTITUTES PURE ITALIANS?

As I am a beginner, I should like a careful description of a pure Italian. I have some with one band, some with two, and, what puzzles me, some with four bands, the third and fourth being not so golden as the first and second, but the fourth is as clearly defined as the third.

J. D. GAGE.

Cambridgeboro, Penn., Sept. 24, 1879.

Your statement that some of the bees have four bands would rather indicate, friend G., that you are blundering in the dark. In the A B C, I have gone over the whole ground carefully, with the aid of engravings, and, by the rules given there, I think no one need make a mistake in deciding which are pure and which are hybrids, and you can decide in regard to a dead bee, almost as well as with a live one.

ANOTHER A B C SCHOLAR FROM MAINE AND HIS CHAFF HIVE.

You see, when Mr. Green wrote his letter, giving his report, golden rod was not in bloom. I don't believe he got much honey from it this year. I don't remember of seeing a single bee on it myself, in this section. Now, Mr. Root, I—I—as the feller said, I thought I had done a good thing with my bees, until this Green man that is not so "green" after all told you his *big story*. I would like to know if his big swarm of bees is in a chaff hive. Here is what I

have done this year. Last spring, I bought two swarms of bees in old hives, transferred one into that chaff hive I had of you, the other into a Simplicity hive. The chaff hive gave me 120 of those nice little section boxes, well filled. I took 40 well filled ones from the Simplicity hive, and 16 boxes from my first swarm. I have now in all six good swarms. I got a package of honey plant seed, and planted it last fall just about the time the ground froze for good. This spring, good, nice plants came up, and have been in full bloom. ALBION R. BODGE.

Exeter, Me., Oct. 6, 1879.

OCTOBER SWARMS.

Did you ever hear of October swarms? One came to us on the 7th of Oct. We are A B C scholars, and it was a new thing to us, but we think it was because we got a Simplicity hive of you, and some of the bees in the neighborhood became disgusted with their box hives, and filled their sacks with all the honey they could carry, and thought they would risk the winter on that, if they could only get into such a nice and convenient home as your Simplicity hive furnished.

CHAS. AHLSTROM.
MRS. AHLSTROM.

Calcutta, Kan., Oct. 11, '79.

If I mistake not, Mrs. A., somebody has reported a *bona fide* October swarm, issuing because of the warm weather and an abundant pasturage; but the one you mention I fear came out for want of stores, or from some other cause of dissatisfaction. May be it was because you had a simplicity hive, and they wanted to move in and try it; if so, I hope you will take good care of them.

AN A B C SCHOLAR IN YORK STATE, AND THE NEW WAY OF MARKETING HONEY.

I began bee keeping a year ago last April, with 13 swarms, part blacks and part hybrids, 8 in L. hives and 5 in old box hives. Two were so weak they gave neither swarms nor surplus honey, yet I doubled my stocks, and came out this spring with 24 good swarms. The last of April and fore part of May they did nicely, for I kept them well closed up, spreading the brood as they grew stronger, till the last of May, when new swarms began to come out. Then we had several, successive, killing frosts that set them back badly, but they began a paying business again about the middle of June, working bravely. But, by reason of the cold and drouth, I suppose the nectar was not as abundant in the flowers as last year, and though the quality of the honey is good, the quantity is reduced greatly. I took off 725 lb. section boxes last year, having 26 swarms in the fall. I took off a little less than 700 this year, having 47 swarms. I use the chaff hives. The little industrious bodies seem proud of their nice, white houses. When some of my friends come and find me in the apiary they say, "Why, you have a real city here!"

I am selling honey in the home markets for 15c to 20c. Twenty-four of the nice white combs in your style case make a beautiful picture, and looks much more inviting than the old fashioned boxes holding 4 to 8 lbs., or perhaps ragged and broken combs as it comes from the brimstoned hive, as some even yet offer it. A. L. TUTTLE.

South Edmeston, N. Y., Oct. 7, 1879.

PERFORATED TIN SEPARATORS.

Is there any such thing attainable, as light, perforated tin, suitable for comb separators? It should be thickly perforated with holes, say $\frac{1}{8}$ inch in size, so as to form a *comb* separator only, and not a *bee* separator. This will give a free circulation of heat, air, and bees.

GOOD REPORT FROM MINNESOTA.

This has been one of my best honey seasons. I had 1500 lbs. of honey, 1300 lbs. being box honey, from 30 hives of natives. I had 24 stocks in the spring, most of them weak. Hives now are very full of honey for winter. J. W. MURRAY.

Excelsior, Minn., Oct. 7, 1879.

I am glad to hear of a good honey season somewhere, friend M. I have never before heard of perforated separators, and they must necessarily be considerably more ex-

pensive than our common tin ones. However, if they would give as much better results over our common separators, as the common separators do over none at all, it would, I think, be a good investment. In friend Nellis' price list, he illustrates perforated tin for separating drones and queens from workers, and perhaps this will be just about what is needed. At least we can make the experiment with it. A 14 by 20 sheet costs 30c., which is about four times the price of our usual separator tin.

ANOTHER APOLOGY TO OUR CLERKS.

I have found 5 sets of metal corners in an "out of the way" place, and as they are wrapped in the same paper as last lot you sent, I am inclined to think they are those I claimed as missing. You may therefore charge me with 5 sets metal corners. I have had no reason to change my mind regarding the other parts.

WHERE DID THE BEES GO?

Last June, I bought an Italian nucleus, with 2 frames of brood, well covered with bees, and a young and vigorous queen. I added one or two frames of black brood. The queen commenced laying at once and all went well. But, on looking yesterday, I found only about $\frac{1}{2}$ pint of bees. The queen is large and all right. I find a few eggs. Every thing seems to be all correct, *except* there are no bees. Can you give me any reason for such dwindling?

Bloomfield, Ct., Oct. 7, 1879.

ANNA L. GRAY.

Well I declare, friend Anna, we are getting so many apologies and acknowledgements from those who have blamed our clerks, that I shall be afraid to scold the boys and girls as severely as I have heretofore. Imagine me holding up a letter to a clerk and insisting that he or she *did not* put the corners in the package, while he or she declares they certainly did.

"But," I say, "you *must* be mistaken, for if Miss Anna did not find them when the package was opened, they certainly were not put in," and off I go, thinking that a clerk who gets paid especially for being *sure* that things are rightly put up should not make such annoying mistakes.

Lo and behold! your card comes, and it transpires that you were mistaken, and I was also mistaken and harsh, when the poor clerk had done his duty, in regard to the corners at least, and he was right, and I wrong. I know mistakes are expensive, and that they cost precious time and money, but while we resolve to be ever so careful in the future, shall we not also resolve to be slow in blaming those with whom we have to do?

I do not know where your bees went, friend Anna, unless they got out of food and almost starved, or else swarmed out for some reason, and only the queen and a part of the bees got back. Did you keep a careful watch over them every day? When building up a weak colony, we should look at them at least as often as once a day, on an average.

NICE COMB HONEY FROM THE SOUTH, AND COMB HONEY WITHOUT SEPARATORS.

I had a few shipments of comb honey from Dr. O. M. Blanton, of Greenville, Miss., which is most certainly some of the prettiest, whitest, and most regularly built comb honey raised in the South for years. I have some of it at our Exposition, where it is not surpassed by any. Our friend Hill supplied me, as usual, with a large lot of choice comb honey, as did also another one of our neighbors, R. Cramer. There is no difference, with these folks, how much honey their bees will bring home, every comb they build is a perfect one, without the aid of separators. Cincinnati, O., Oct. 7, '79. C. F. MUTH.

WINTERING 8 COLONIES, IN A SHINGLE CHAFF TENEMENT HIVE.

I was much interested in Mr. Hutchinson's description of a tenement hive in the last No. of GLEANINGS. The idea has come into my head, of placing 4 Simplicity hives in the top story of a hive like the one he describes, thus combining the warmth of 8 swarms, and saving 4 cushions. I would place the Simplicities in their winter quarters, over the bees in the tenement, in the fall, and leave them there until quite warm weather in the spring, when they should be taken out and gradually moved to their summer stands. We would need a bottom board a little different from that of the Simplicity, and it should be fastened to the hive; yours, I think, would raise the hive up too far from the swarm below, and not leave room for much of a cushion between the top and the cover of the tenement. I would have the Simplicity cover removed and a cushion over the bees in its place. How do you think the plan will work? Mr. Townley mentions the plan of placing a colony in the top story of a chaff hive to winter, in one of the back numbers of GLEANINGS. I would like to know how he likes the plan. I do not see why bees should mix or unite in the tenement more than in the house apiary. Are not the entrances to the latter as near together as the entrances to the former? J. B. COLTON.

Waverly, Bremer Co., Ia., Aug. 11, 1879.

I have no doubt that the plan would prove a most economical one, so far as wintering is concerned, but to be obliged to get a colony out of the upper story, whenever you wanted to get into the lower one, would be a pretty big job. If the whole eight were in good full combs, amply provisioned, and full of bees, and both upper and lower stories arranged so the bees could fly whenever a warm day occurs, I cannot see but they might do very well, and give little trouble. Eight stocks thus coupled together, ought to assist each other very materially, in passing through zero seiges. Who will try it?

THE CASE OF ONE TIER OF SECTIONS VERSUS THE BROAD FRAMES.

Tell us, in GLEANINGS, how you like the cases to use on the hives, if you have tried them. I think the separators are indispensable; otherwise I should like two cases on a hive much better than a set of broad frames. Our strongest colonies had the frames, and weaker ones, cases; and I think every one of the latter have done as well as the best of the stronger ones. MARY SIMONS.

Brocton, N. Y., Oct., 1879.

To tell the truth, friend Mary, I have never used the case of sections, though many of our neighbors have. We have been obliged to turn our whole attention to queen rearing, so that what little honey we have secured was in brood frames in the lower story. There is such a difference of opinion, I am not now prepared to decide, but we shall, for the present, continue to furnish both kinds. On page 401, of our Oct. No., we have a report that is directly the opposite of yours, as you will see. Circumstances and the season, as well as the disposition of the bees, have much to do with it.

HYBRIDS VERSUS FULL BLOODS FOR SWARMING, COLD BLAST SMOKER, &c.

Please send me another $\frac{1}{2}$ doz. cold blast, Simplicity smokers. I have sold out again, and still they ask for more. We hardly get any honey here at all. I extracted about 16 gallons from 4 stands which had two stories of comb. The others I wanted to run for comb honey and failed, except in one, strong, box hive of pure Italians. I did not get a single natural swarm from 14 pure Italian stands, but the 15th, a good hybrid east two swarms; they had, however, in the spring, a box of 7 small frames of honey left; now they have none. All bee-keepers who don't watch their bees closely this fall and prevent robbing will lose, probably, more colonies this winter

than last. My bees don't seem to breed up as strong this summer as they did last either. Our grocers sell all the honey they get, as fast as it comes in, and cannot supply the demand.

Please send me the smokers as early as possible. I have been out over a week, and promised one man to send right off one week ago yesterday, but could not well get the time, and neglected to send; to-day another bee-keeper wants one, and I will have to send for more. I think half a dozen will be all I can sell this season. That will make two dozen I have sold here this season, besides several single ones I have sent for; also a small number of my bee friends sent for one themselves, because I never thought I could sell many and did not want to trouble myself with them, but somehow I got myself into the business. I have never heard a single complaint from any one about here that uses your hot blast, or the new cold blast; but, since the introduction of your Simplicity cold blast, none would have a hot blast for half price. GEO. L. HOLLENBACH.

Noblesville, Ind., Aug. 14, 1879.

IMPROVEMENT IN SMOKERS SUGGESTED, TWO QUEENS IN A HIVE, ETC.

I would like to suggest that, in making your smokers, you place the door $\frac{1}{4}$ farther around from its present position. Now, the heat from the draft hole burns my fingers, and the smoke stains them a nice brown that lasts over Sunday. The finding of more than one queen in a hive is such a common occurrence, that perhaps you will feel no interest in this case, but, it being our first experience with "dual royalty," we were much interested. The history is as follows. A hive of Italians with a queen 2 years old, the property of Mr. H. L. Lankton, of Wethersfield, sent out a swarm June 30th. The queen being clipped and confined in a queen-yard, the swarm returned, and were divided at once. On July 9th, they sent out a swarm which clustered. They were driven back by reflecting the rays of the sun upon them from a mirror. At this time, the queen, looking large and vigorous, was seen in the queen-yard. They were divided again. On July 12th, a new queen was discovered. On July 22d, having shaken the bees upon a sheet we found both the old and the new queen. The old queen was not looking as large as when seen in the queen-yard.

Hartford, Ct., Aug. 5, 1879.

C. A. LOVELL.

Thanks for the suggestion in regard to smokers; the change shall be made. The 2 queens in a hive strengthen my opinion of the great probability that we soon shall be able to accomplish what I have suggested on page 441.

BUCKWHEAT, ETC.

At first the bees would not touch the buckwheat, but now they are just "going for it; especially the blacks.

CHAFF HIVES; DO THEY NEED DIVISION BOARDS?

I wish I were able just now to send for enough chaff hives in the flat to winter all my bees, as I feel confident they are the best thing for wintering, for this latitude, of anything yet discovered, judging from the one I have, that I got of you last spring.

Is it necessary to put division boards in chaff hives for wintering? E. T. FLANIGAN.

Belleville, Ills., Sept. 10, 1879.

I would not use division boards in chaff hives, if they contain full strong colonies; but, if such is not the case, better use them to contract the space, and have the brood nest full of bees. If there is a space left back of the division board, fill it with a cushion or loose chaff.

ONE FAVORABLE MENTION OF THE SWEET PEPPER.

I see you speak of the sweet pepper or *Clethra alnifolia*, in GLEANINGS. It is quite plentiful here, and, being now in full bloom, the bees are doing well on it. It comes at a time when there is a scarcity of honey plants, and yields honey as white as white clover, and nearly as nice.

W. O. SWEET.

West Mansfield, Mass., Aug. 15, 1879.

THE NEW GRAPE SUGAR CANDY FOR FEEDING BEES, ETC.

If you deem this of the least importance, you may insert it in the "Growler," for in it I have seen many things (like this production) to which I should be very much ashamed of annexing my signature.

The grape sugar came in good condition, and is far superior to any we have ever seen. We find it an excellent article for fall feeding and brood rearing; in short, it does exactly what you recommend it to do. The plan for making candy, found in the October issue of GLEANINGS, works admirably; at least, the bees say it is a very nice article. How do we know that they say so? We know it from the fact that they sip it up very readily, and by their buzzing and flying about us they seem to say, "Good morning; thank you very much for what you have done for us. We will not sting you rudely as we used to do, for we are wiser now, and know that you take an interest in our welfare." Isn't this last conclusive enough that they say all this, and much more that would benefit us all greatly, if we were only wise enough to comprehend it all.

Friend Root, you have truly said that patience is required in an apiary; at least, we have found it so in every department. By patience we have learned to work about bees without a veil over our face, and even to feed them from our hands, and lay the smoker aside in ordinary cases. We now do things with them that we would not have done six months ago, for love or money, all of which (and we consider them great achievements compared with what we formerly knew) we have acquired by reading GLEANINGS (in our leisure hours), by experience, and by patience.

We also raised five tested Italian queens. The sixth one received some injuries from the bees, when only a day or two old, at which time we saw them ball her. We then gave them smoke, but after all they ruined her left wing. Now we should like to know if she will become a laying queen. She is now 19 days old, and no eggs are to be found in any of her domain. What is your opinion, friend Root, in regard to her broken wing, &c.?

North Lima, Ohio., Oct. 17, 1879. X.

Many thanks, friend X, I would willingly give you room in the growler, but—ahem, you see another man got the place before you applied. If your queen can't fly back to her hive when you toss her up in the air, she is "no good at all, at all." I am very glad you like the grape sugar candy, and my hopes are strong that it can be given to a destitute colony, and, so long as there is candy in the tray above the cluster, there will be no danger of their dying.

BEES KILLING A SPAN OF HORSES.

My bees killed a team of horses for a neighbor, while working in his own field adjoining my apiary. What I want to know is, can he recover damages of me? Is there any ruling of the courts to that effect? Any information you can give me will be thankfully received.

Peoria, Iowa, Oct. 7, 1879.

I know little of law, friend H., but I do know this, I think, that it will pay neither you nor your neighbor, to lose any more money or property by paying it to lawyers. I would have a friendly talk with him, and if you could not then see things alike, I would call in some of your neighbors, and each of you state the case, and agree to abide by their decision, making up your mind that it is far better to bear wrong of a neighbor, than to wrong him.

There is one point I would suggest, as it may be overlooked. The community, as a general thing, are much more inclined to be hostile toward bees, than to other domestic animals. What I mean is this; that almost all of your neighbors will be inclined to look at the matter differently from what they would if it was a horse or cow that had kicked or gored your neighbor's horses. People

are killed every little while from being kicked by horses, or thrown from vehicles, but no one ever, on that account, said that horses should not be kept. Well, once in a great while, we hear of persons or animals being killed by bees, and there is then a great uproar, and many declare bees should be banished from civilized life. Ask your neighbors to decide the matter as they would an accident among the cows or horses; but if they will not, I would pay over whatever they thought right, friend H, far rather than to go to law about it. If it were my case, I would at once go for the minister of my parish. Ministers are a great deal cheaper, and far healthier for a community, as a general thing, than lawyers. What do we pay ministers their salaries for, if not for their advice in settling such matters in a Christian and neighborly way? Do not, I beseech you, do any thing that will cause you to be on unfriendly terms with your neighbors, any of them.

THE QUARREL ABOUT THE "SUNSHINE."

On page 402, Oct. GLEANINGS, I see Mr. N. R. Fitz Hugh, Jr., disputes my assertion, that the summer sun shines more on the north side of a hive in N. Y., than in Mississippi. Now this is not a vital question, but as its discussion may interest your young readers, and awaken some thought and study, I hope you will allow me a little space to explain. First, I want it understood that I do not claim it is warmer in N. Y. than in Miss. I know the contrary. A few years ago, I rode across Ohio, in March, and I saw the people riding in sleighs, while heavy snow banks lay along the fences; and three days afterwards, I caught a beautiful butterfly in the moss draped woods of Madison Co., Miss.

What I do claim is this: as we travel northward, the summer days grow longer, and the days lengthen at the ends; so that, as the sun only shines on the north side of a hive in the morning and evening, if the mornings and evenings are longer in the north, then the north side of an object gets more sunshine there than in the south. I see by my almanac that the sun rises here, on the 20th of June, 29 minutes earlier, and sets 39 minutes later, than it does in Miss. If, during those 68 minutes, "old Sol" is not looking at the north side of things, will friend Fitz Hugh tell us what he is up to, or up for. If you should put your hive in Greenland for several days in June, the sun would shine 12 hours on the north side, and wouldn't go down at all. If you still traveled northward, the north side would be illuminated more and more until you reached the pole, when your hive would all at once cease to have a north side, and every side would be south. What a strange place that must be? no north, no east, no west, but only one vast, universal, solid, south!

JAS. E. DEAN.

Fishkill, N. Y., Oct. 20, 1879.

Gently, my friends. I tell the girls here in the office that when they are *very* positive, they are (*always*, I had almost said, but I think I will say *almost always* or I shall be in the same boat) almost always mistaken. Now, friend Fitz Hugh, do you not think, on looking back at page 402, that men, as well as women, are almost always mistaken when they are very positive? I am sure you will own up good naturedly, if you are wrong, since you are right here before us all.

A SWARM OF BEES IN OCTOBER.

I had a *bona fide* swarm of bees this month. I found them on the 10th, in a box where they had hived themselves. They had 3 sheets of comb, respectively 5, 6, and 7 inches long. The box was over some old honey boards. I wanted the honey boards, and upon lifting the box, out dropped about ½ lb. of bees. I put them in a frame hive, and they are doing well. Bees are doing well on fall flowers.

Carrollton, La., Oct. 18, 1879.

D. MCKENZIE.

Notes and Queries.

READY FOR WINTER.

WE have had a poor honey season, on account of the drouth. I had 16 stocks in spring, in Simplicity and chaff hives, and have taken 500lb. section box honey, and increased to 24. They are in good condition for winter, except that they are not very heavy with honey, and may need some feeding in the spring. They are all packed with chaff division boards on each side, and cushions on top, of frames.

R. I. BARBER.

Bloomington, Ill., Oct. 10, 1879.

IMPORTANCE OF ANSWERING ALL LETTERS PROMPTLY BY RETURN MAIL.

Every thing you send comes promptly. I have sent to parties not 200 miles from here, when the same mail that carried your orders carried theirs, and received your acknowledgement first.

SAMUEL GRISCOM.

Montgomery, Ala., Sept. 21, 1879.

HONEY CAUSING SICKNESS.

Do you know of any receipt that will prevent strained honey from causing sickness (I mean when used in moderation)?

[Nothing, unless scalding will help it. By the use of the extractor we can keep the different kinds of honey separate, and those who find it difficult to eat one kind will often find another to agree with them perfectly.]

SCALDING TO PREVENT CANDYING.

Also will scalding it prevent its candyng?

[Scalding will liquify all candied honey, but it will soon candy again, if exposed to cold, unless it is hermetically sealed while hot, according to the directions given in A B C.]

HONEY YIELD IN OCT. IN VIRGINIA.

The honey yield is just commencing, and the little fellows have filled every cell this last week.

JOHN WILLIAMS, ENGLISHMAN.

Barton's Creek, Va., Oct. 30, 1879.

[It really does me good, to hear of a honey yield in October, in any part of the world where GLEANINGS goes.]

REPORT FROM AN A B C SCHOLAR.

I commenced with 4 colonies, and increased to 9 the first year. The next, I increased to 21; and this year, increased to 49 and took 700lb. of extracted honey, and 300lb. of comb honey. I winter on summer stand, packed in chaff, and have never lost by wintering. While $\frac{1}{4}$ of all the bees exposed in the old box hives perished in my neighborhood, last winter, mine came through all right, and I had a swarm May 5th. My plan is to increase by dividing, in which I have always succeeded.

FRANCIS DANZENBAKER.

Gettysburg, Penn., Oct. 13, 1879.

ANOTHER REPORT FROM CANADA.

The weather is warm like summer. Gnats were biting me this morning before it was light. What a pity we could not have had such weather in Sept. It was so cool then the bees did not get much honey from golden rod or other fall flowers. Our whole surplus was from fruit blossoms and white clover; basswood only yielded a taste. This has been the poorest season I ever knew; still we have taken 40lb. surplus to each old stock, and I have sold nearly 100 queens.

ILA MITCHENER.

Low Banks, Ont., Can., Oct. 7, 1879.

[Pretty well for a bad season, friend Ila, but how does it come that D. A. Jones gives such a good report? I presume his good fortune does not extend all over Canada.]

THE NEW PLAN OF INTRODUCING QUEENS.

After I received the August number of GLEANINGS, I tried your plan of introducing queens, and was perfectly successful. I think that will prove to be a better way than the old plan of caging them 24 to 48 hours.

O. A. HOAG.

West Union, Mo., Aug. 16, 1879.

INTRODUCING QUEENS.

I received the queens the 4th inst., and have released her every day since, except the two Sundays, and, to-day, after having been several times "balled", she was accepted and is laying. The native queen proved to be a very small one, really not as large as a worker. Hence the trouble to find her.

C. C. SHIPP.

Spring Dale, Miss., Oct. 13, 1879.

[Depend upon it, my friends, this is the only way we can succeed with stubborn colonies. The plans often given, of allowing the bees to liberate the queen, caging her on the brood and letting them gnaw her out, &c., will all fail when you get a colony like the one mentioned above.]

OUT OF PRINT(?).

Can your book, known as the "A B C of Bee Culture," be obtained any where in New York City? I have inquired for it of the O. Judd Co., and American News Co., and they say it is out of print. I would like to know your price for mailing it to me, provided it is not for sale in this city (New York).

Chatham, N. J., Oct. 13, 1879.

G. M. SWAIM.

[Rather a joke on the A B C, is it not, friend S.? It rather looks as if some of the city folks had a stereotyped way of excusing themselves for being out of a book. I think you will find the O. Judd Co., at least, supplied in future.]

I came through with 50 swarms last spring. My average yield per stock is 53lb., or 2,150lb. in all, 200lb. extracted honey being included in above.

A. W. ANDERSON.

Cambridgeboro, Pa., Oct. 7, 1879.

[Pretty well done for this season, friend A.]

A CAUTION ABOUT PUTTING MANY QUEEN CELLS IN ONE HIVE.

I write you asking you not to put your article on "Economy in Maturing Queen Cells," on p. 301, Aug. No., into the A B C. I thought it would be a nice thing, and put about 70 in one hive, when the yield of honey suddenly ceased, and the bees, including not to have so many, tore all down but about 10. So you see I lost \$15.00 worth of cells in three days, and I do not wish others to lose in the same way.

F. L. WRIGHT.

Plainfield, Mich, Aug. 15, 1879.

[Thanks, friend W. I have never had the cells destroyed as you say, but as we have never given the matter a lengthy test, you may be right.]

THE COLD BLAST SMOKERS.

The $\frac{1}{2}$ dozen cold blast, Simplicity smokers, obtained of you early in the season, were at first discarded as a nuisance. Latterly, however, I have had the small chimney, or cone, supplanted with a larger one, and find them to work in a very satisfactory manner indeed.

J. S. WOODBURN.

Newville, Pa., Aug. 9, 1879.

Will not cheap brown sugar or raw cane sugar be used as readily as grape sugar, by the bees? and cannot cheap syrups or molasses be used for feeding bees?

H. P. NICHOLS.

Bridgeport, Conn., Aug. 21, 1879.

[Net as readily as the grape sugar now made; besides it is not as wholesome, or as cheap.]

PURE DRONES FROM HYBRID QUEEN.

Will a pure Italian queen raise pure drones, when she is mated with a black drone? or will the drones be the same as the workers, only half bloods?

[Drones will be pure, I think. See A B C.]

SOUR HONEY.

Will it be hurtful, to feed bees sour honey? If not, what way would you feed it?

[Will do harm for winter stores, but may be fed safely in spring and summer, if they will take it.]

Honey has been almost a failure here this season.

Alexis, Ill., Sept. 27, 1879.

E. L. DUNN.

THE ASTER AS A HONEY PLANT.

We have a flood of aster honey here this fall.

W. L. MOORES.

Cyruston, Lincoln Co., Tenn., Oct. 17, 1879.

ITALIANS VERSUS BLACKS.

I have 10 stands of bees, 9 black and 1 Italian. The Italians, or their queen rather, I bought of D. S. Given late in the summer. Not any of the blacks have been seen out of late, but the Italians are out early and late to work for dear life. I think more of that one stand than of all the rest, and then they are so tame and active, that it is a pleasure to handle them. I want nothing but Italians after this year. Bees all through this part of the country have not made honey enough (on an average) to keep them, excepting the Italians. Is this the general experience of others? W. H. SHEDD.

Watseka, Ill., Oct. 16, 1879.

EXTRACTING UNSEALED STORES IN THE FALL.

Should unsealed honey be extracted now, or wait until November?

[I hardly feel like advising to extract in the fall at all, my friend, but if you have had an unusual flow of honey, perhaps it may be best to extract that which is unsealed. I think I would at least wait until some warm day in Nov., and then if there was not a great quantity I would not extract at all.]

CONTRACTING SPACE FOR WINTER.

Should I put in any more frames for winter than the bees can well cover?

[Put the bees on the fewest frames possible, but see that these few frames contain ample stores.]

SUGAR SYRUP VERSUS HONEY FOR WINTER.

Is sugar syrup as good to feed for winter stores as honey?

[Syrup from coffee sugar, if fed early and well sealed up in the combs, as a general rule, is more wholesome than the general run of natural stores, and much better than the most of the late fall honey. If you have not fed until now, use candy in place of syrup.]

APPLE JUICE OR CIDER FOR WINTER STORES.

I notice the bees working on apples, and this morning I extracted a little uncapped honey and it was decidedly acid. Will such honey cure so as to be good for the bees? MRS. A. M. SANDELS.

Sheridan, Mich., Oct. 5th, 1879.

[If your honey tastes acid, I am inclined to think it comes from the bees having been to some cider mill, for they would hardly get enough from apples to do them any harm. You will see by the A B C, cider is very dangerous where bees collect it for winter stores.]

COMBINING THE MAT AND ENAMELED SHEET.

Why not tack the slats to the top side of the enameled cloth, and thus get the advantage of both?

[I have tried the plan, but it does not seem to be as convenient, and it kills bees. The enameled sheet kills less bees than any other device I know of, because they readily crawl out from under it.]

Could the entrance be made in the end of the hive?

[Yes, or any where you wish.]

FLAX CHAFF, ETC.

Is flax chaff good for chaff packing?

Wheeling, Ind., Aug. 17, '79. O. P. M. HEAD.

[Any kind of chaff that is warm, and will absorb the moisture will answer. Flax chaff has been used, but buckwheat, oats, or wheat seem to keep dry rather better.]

BUCKWHEAT SOMETIMES A FAILURE, AND WHAT TO DO WITH COLONIES HAVING LITTLE OR NO COMB.

The buckwheat was nearly a total failure. The young swarms in this country have no comb or honey. I had quite a lot of honey in boxes, got before I divided the bees, but I used it up, expecting they would fill up on buckwheat. Our oldest bee man can not account for the buckwheat's being a failure; the crop was tolerably good. Will you please answer the above and tell me what course to pursue to save my bees. C. S. SHANNON.

Shannondale, Pa., Oct. 22, 1879.

[It is rather a bad case, to attempt to winter colonies without combs. It may be best to unite them with colonies having combs; but, if they are strong in bees, you can perhaps save them, by feeding the candy mentioned last month. A farmer once came to me, saying some boys had robbed his bee hive, leaving the bees clustered against the stubs of the

combs, in the top of the hive, where the comb had been broken out. By my advice, he carried them into the cellar, fastened a fanning mill sieve over the hive, which was inverted, so the bees could not get out, and fed them coffee sugar syrup, through the sieve, all winter; and they came out in the spring in good shape. The syrup was poured on them a little at a time, so as not to daub their wings. He did better than I expected.]

ARTIFICIAL QUEEN CELLS, AND WHAT CAME OF THEM.

May I inquire how "nice queen cells to order, strung on a stick, for 10 cents per dozen (!) sent by mail, post paid," has "panned out?" Are you and friend Boyd satisfied with the results? I fear that each of your shares of the proceeds will be somewhat similar to the old freedman's in Mississippi, who was to get one-fifth of all the crops raised; but, when gathered, the old man found that there was no one-fifth to get. Bees are O. K. R. C. TAYLOR.

Wilmington, N. C., Oct. 18, 1879.

[The artificial queen cells were partially a success, but the bees were so notional about raising queens in manufactured "bee cradles" that we dropped it. I am not sure after all, though, but that it may be made a success.]

ROOF TO THE ONE AND A HALF STORY HIVE, AND THE FORTY CENT CASE OF SECTIONS.

Your one and a half story hive is (in my opinion) a *humbug* and a *nuisance*. The cover leaked so badly, I was forced to take my bees out of it. The 40c case of 28 sections is another *humbug*. I lost about 20 lbs. of honey by it, for while the bees were sealing the sections over, they had nothing to do for want of room. They were a very strong colony of blacks. Perhaps you will say I ought not to have put it on such a swarm. Well, this is my first year with bees. I will know better next year, if I live. I don't write in a complaining spirit, and have no hard feelings in the matter, but am just a little disappointed, that's all. W. E. FLOWER.

Shoemakertown, Pa., Oct. 15, 1879.

I must thank your cover a bad one, friend F., for I have had no complaint before of their leaking. If water does get through them, we may be compelled to use tin, as we do on the chaff hives, but it will be considerable additional expense. In regard to the case, you will see, by the reports from others, how widely opinions differ; some claim they have found it ever so much ahead of the broad frames, and others right to the contrary. Perhaps another season might cause you to decide differently.]

THE QUEEN THAT FLEW AWAY, AND WHERE SHE WENT.

Queens came to hand promptly, and I have succeeded in introducing them. Both are laying now, and seem to be very prolific. I had a little trouble with one of them. The next day after laying the cage on the frames, I looked and found the bees all dead but one. I concluded to put fresh bees with her, and put one in. It attacked her. As I had not intended to turn her loose at that time, I had neglected to prepare smoke, but blew my breath on them two or three times, and could not separate them. The queen commenced screaming, and I tore off the wire cloth and separated them, and attempted to put her back in the cage, but she slipped my fingers, soared high, and alighted on a peach tree. I attempted to catch her, but she flew again, and I lost sight of her. I watched around there for an hour or two, hoping that she would come back, but failed to see her. Well, I walked into the house, feeling very much like the boy that let the bird go. Next day, I opened the hive with some thought of restoring the old queen, when, to my surprise and gratification, I found my lost queen, moving about pert and spry as a cricket. She had introduced herself. We have had a very poor honey season here this year, until about two weeks ago. Bees are gathering honey faster now than they have any time this season. Russellville, Ky., Sept. 22, '79. JOSIAH DORRIS.

A FEW QUESTIONS FROM AN A B C SCHOLAR.

Are there always robbers buzzing about the entrances of the hives? Is that common in all apiaries?

[Robber bees are not common only when there is a dearth of honey. Unless your bees are badly demoralized, not a robber should be seen, for at least two months, in the height of the season.]

EARLY ITALIAN DRONES.

How can we get our Italian drones hatched very early next spring? We want them pushed ahead of the blacks, if possible. Would you advise putting drone fdn. in the hive to get them very early?

Pocahontas, Tenn., Oct., 1879. C. M. REED.

[Feeding will start drones earlier, if done skillfully; but it is a pretty hard matter to get them out much before they make their appearance naturally.]

BLACKS VERSUS ITALIANS.

Now, if you care to hear it, I will say a word about my black bees. There is an apiary of Italians 12 miles from here, but my blacks outstrip them "tee-totally," making hundreds of pounds of surplus honey, while his, so to say, make none. If I should succeed in getting three banded workers, I should "try them to their bottom;" and, if they prove themselves superior,—well, I suppose I must then Italianize. J. H. JOHNSON.

Middagh's, Pa., Oct. 21, 1879.

[That is right: give us reports from practical work. Your locality may be a better one than your neighbor's.]

HOW LATE MAY QUEENS BE FERTILIZED?

Is it too late for virgin queens to meet with drones this season?

[It depends on the locality, weather, &c. We have never had queens fertilized here later than the middle of Oct.; but, with such a fall as this, I presume we might get them fertilized even in Nov. It is so risky, however, it hardly pays to take the chances so late.]

WINTERING IN BOTH STORIES.

Will strong colonies winter well, in two story, Langstroth hives, without honey board, when both stories are filled? ISAAC KNEELAND.

Newburn, Ia., Oct. 20, 1879.

[Very strong colonies are sometimes wintered in that way, but, as a general thing, I think it rather a risky experiment. It would virtually amount too nearly to the old box hive system, and we have examples all around us, of how bees winter in these.]

PARALYZING WITH PUFF BALL.

Friend Harding, a bee man, purchased a "dollar" queen of you a few days ago, and introduced her as follows: He removed the native queen, and near sundown, in order not to be disturbed by robber bees, placed the cage containing the queen in the hive where he wished to introduce her, and, with his smoker charged with puff-ball fuel and fire, proceeded to smoke them until all were paralyzed. Then he opened the cage, put the queen with the bees, and, when the bees recovered from this state of insensibility, they accepted her, of course. Friend H. also unites weak colonies in this way, with success. Now, friend Root, what do you think of this plan? Do you think it cruel?

JOHN F. MICHAEL.

German P. O., Farke Co., O., Oct. 20, 1879.

[The plan was in use several years ago, but, as it was discarded in a short time, I cannot think it was always successful, and I believe those who tried it generally agreed that they preferred live bees to work with, rather than paralyzed ones. If it always succeeded, I should not think its cruelty would be an objection.]

I am an A B C scholar, and must ask you for some advice. I was unfortunate last winter with my bees, having lost 3 out of 5 stands, and I do not wish to sustain such a loss this winter, if I can help it. I have now 10 stands of bees, all, save one, in L. hives.

CHAFF PACKING OR CELLAR WINTERING.

Now, in your judgment, would it be better for me to go to the expense of packing them in chaff, leaving them on their summer stands, than to put them in the cellar? [Yes.] We keep vegetables in the cellar also.

BUCKWHEAT CHAFF.

Would buckwheat chaff be good to pack them in? [Yes. See page 451.] Should the chaff come over the top of the cap of the hive, when chaff cushions are used under it? [Yes.]

WHEN TO PACK BEES IN CHAFF.

What time do you generally pack for winter?

[As soon as you have frosts any way, and, if packed a month before, it will be all the better.]

My bees did middling well. They doubled themselves in numbers, and gathered considerable surplus honey. J. S. O. II. KEPHART.

Shueyville, Ia., Oct. 15, 1879.

LAWS IN REGARD TO WHERE BEES MAY BE KEPT.

I have been told that there is a law which prohibits the keeping of bees within a certain distance of a public road, or a neighbor's house. If there is, such a law, I think the A B C class should be informed of the fact, before they locate.

Euclid, O., Sept. 3, 1879.

F. C. WHITE.

[I have never heard of such a law, friend W., and I am pretty sure none such exists; for I have asked those who should know, whether bees could, by law, be banished from a neighborhood, or corporation, and was told it could be done by no existing laws. Notwithstanding, I would not want to keep bees in any place, where they might prove troublesome to my neighbors.]

QUEENS WHOSE EGGS DO NOT HATCH.

I noticed T. M. Moltz' statement, in Sept. No. of GLEANINGS, in regard to a queen whose eggs will not hatch. Well, friend R., I have such a queen. She is very large, light in color, and judging by the way she piles up the eggs, she is very prolific. She has been laying for 3 or 4 months, but not an egg will hatch. If you would like such a queen, please send me a cage, with the enclosed order, and I will ship her to you. M. C. KERNS.

Pomeroy, O., Oct. 19, 1879.

[Thanks, friend K., but we have found such queens so unprofitable (the two we have had) that we pinched their heads off.]

TIME OF BLOOMING OF THE SIMPSON HONEY PLANT.

The plant blooms a little the first year from seed; that is, if sown in the fall, it will bloom the next summer, but does not come into full bloom until the 3d year. The plants I sent you were sown in the fall of '77. I would have replied sooner, but the sickness and death of my wife, on the 24th of Sept., delayed me. JAS. A. SIMPSON.

Alexis, Ill., Oct. 2, 1879.

[Many thanks, friend S. We all deeply sympathize with you in your bereavement.]

COVERING HIVES WITH GLASS.

To protect your hives in winter, how would it answer to set window sash on end, one on each side, 6 or 8 inches from the hive, and one over top, so as to enclose the hive, leaving small holes in front for the passage of bees, and ventilation?

Boyd's, Md., Sept. 24, 1879.

F. P. MEIGS.

[The same plan has been tried, friend M. It amounts to about the same thing as the greenhouse experiment, of several years ago, and the difficulty seems to be that you warm the bees up to an extreme degree, even in winter, and, at night, or during cloudy days, they get so cold, that the changes of temperature are much greater than without the sash. Sudden changes, especially from one extreme to the other, are very hard on all kinds of animated nature. Better use the chaff packed hives, to ward off the sun, as well as the frosts.]

DRONES ALL WINTER, AND AGE OF DRONES AGAIN.

Did you ever know drones to be allowed to live through the winter, except in a queenless hive? A neighbor, last winter, had a box hive that contained live drones all winter, and is as prosperous as any at the present time. To my mind, this explodes the idea that drones are very short lived. Do you use chaff cushions in the upper story of chaff hives, or what is used, if anything? I am to use several of your pattern of chaff hives this winter, for the first time. L. D. WORTH.

Reading Centre, N. Y., Sept. 20, 1879.

[I have heard of drones living over winter in powerful colonies, but never saw such a case. It does, indeed, seem to explode the idea of their being so short lived, but are you sure drones were not reared in the winter? Very strong colonies usually start drones about as soon as they get a large cluster of worker brood, even if it is unfavorable weather.]

WELL DONE FOR AN A B C SCHOLAR.

Bees have done very poorly this season, although I got 56 sections well filled, from one or two swarms, in June, since which time they have only made a living. I started May 1st, with 4 swarms in box hives, bought at \$3. each. I then transferred.

Abingdon, Ill., Oct. 21, 1879. J. H. REED.

CONFINING BEES TO THEIR HIVES.

I see, in looking over my GLEANINGS, you seem to approve of confining the bees in the hive, when in the cellar. Are you still of the same opinion?

[If I were going to winter in a cellar, I think I should confine the bees to their hives, not because it would save the bees, but because it would prevent dead bees from making the room untidy.]

LOSS IN FEEDING.

I fed 29 lbs. of sugar to 3 second swarms, this fall. One day after I finished feeding them, they only weighed 22 lbs. heavier, although I put 1 lb. of water to 2 lbs. of sugar.

Pontiac, Mich., Oct. 25, 1879.

[If you fed 29 lbs. of sugar, your hives should show that amount, less what was consumed, and used for rearing brood. You do not say how long you were doing the feeding.]

HOW TO GET YOUNG QUEENS TO LAY IN THE FALL, &c.

I have a half dozen young queens that are from 20 to 30 days old and are not laying. They all have good wings and drones are plenty. What shall I do with them? I had one Italian queen that laid an abundance of eggs, but not an egg would hatch.

South West, Ind., Sept. 24, '79. I. R. GOOD.

[Feed the colonies where the young queens are, and give each a frame of brood for a pattern, and they will usually commence laying. This makes still another queen, friend L., whose eggs do not hatch.]

CEMENT FOR FASTENING IN FDN.

If there is any kind of cement made for fastening combs in frames, tell me who keeps it, and the price of it.

A. ROYAL.

Hawkinsville, Fla., Sept. 11, 1879.

[The cement generally used is rosin and wax. You can get the proportions by trying. If you have too much rosin, it will be brittle; if too much wax, not tenacious enough. White glue has been used for fastening the wired fdn.]

A QUEEN THAT WOULD NOT LAY, AND TWO QUEENS IN A HIVE.

As one of your A B C class, I would like an answer to the following: I wrote you about a queen that did not lay for a long time. I fed the colony, as you said, and she began at once to lay. Looking over the combs, Oct. 10th, saw two, yellow queens, but no brood. How did the second queen get into the hive? To-day, Oct. 27th, they are still there. Now, what shall I do? I am afraid that one is a virgin queen. I feed half grape sugar, and half coffee A sugar mixed, for winter. I started in the spring with 3 swarms, and have increased to 10; 6 Italian, 2 hybrid, and 2 blacks. The honey crop was a failure here.

Meiser, Pa., Oct. 27, 1879.

[Don't do anything, friend F. The two queens will do no harm, even if one is a virgin queen.]

IS A PURE DAUGHTER OF AN IMPORTED QUEEN AS GOOD FOR BREEDING AS AN IMPORTED QUEEN?

Do you think a tested queen, that has surely mated with an Italian drone, is just as good, and just as pure, as one from Italy, for raising young queens?

Best's, Lehigh Co., Pa., Oct. 23, '79. D. E. BEST.

[This is an important point, friend B., and I have been for some time thinking that a selection of good queens from our own stock might be even better than those we import from Italy. If I were going to raise honey alone, I am not sure I should use a queen from Italy. See what I have said on page 431. If I were raising queens for sale, it would be another matter; for, inasmuch as there has been so much disputing about what was pure and what was not pure, it is a comfort to any one, and it would be to me, to know that the queens purchased are unquestionably daughters of queens right from Italy.]

THE PICTURES.

I can not afford to give up GLEANINGS, for the pictures are worth the price, besides the amount of instruction on bee keeping.

I. R. GREEN.

Unadilla, N. Y., Sept. 24, 1879.

A man who bought an A B C book and a smoker, at our fair, said it was of more benefit to him than all the rest of the fair.

D. C. UNDERHILL.

Seneca, Illinois, Sept. 10, 1879.

A GOOD REPORT FROM BUCKWHEAT, AND ALSO A GOOD REPORT FROM THAT SUNDAY SCHOOL.

My bees are all Italians and hybrids. Late frost in the spring killed all the maple and elms, and the dry summer killed the remainder. What saved my bees was an acre of buckwheat; and I count that worth \$50. to me in surplus honey, not saying anything about winter stores. Now about our Sabbath School; we have had a good meeting and 24 conversions recently. Now I don't think there are more than 8 or 10, over 12 years of age, in our large school of 100, that are not Christians, and my prayer is that God may give us them. We have such a pleasant school! It does my soul good to see them come in and enjoy themselves so well. I wish you could step in some Sabbath morning and take part with us.

JAMES PARSHALL.

Union Valley, Nodaway Co., Mo., Sept. 22, 1879.

[I am glad to hear so good a report from a single acre of buckwheat, but I am more glad still, to hear that that Sabbath school is prospering so well. Such work is not only laying up treasures in Heaven, but the influence will spread and widen upon earth, long after you and I have passed away. As I feel that I have a sort of a share in that school, I am going to make them a present of an imported queen, to be kept and cared for by you, for the benefit of the school, in such a way as you may think best.]

BEES THAT WORK ON RED CLOVER.

THE following came to hand after what I had written on p. 431 was in print.

You may be sure, I read it with interest, and I hope you may too.

Referring to Mr. Vankirk's letter, on page 413 of GLEANINGS for October, I would ask, is he not a trifle hasty in pronouncing the queens impure because they are dark colored? Having, during the past week, visited the apiary of Capt. W. F. Williams, of Liberty Centre, O., my attention was drawn to numerous colonies that had stored a large surplus of honey from red clover, and this during the time when blacks and hybrids were not making a living.

During the past 3 years, friend Williams has secured large quantities of red clover honey, and he endeavors to improve his stock, breeding only from those that possess the ability to gather the honey from red clover. In order to do this, he practices a novel method of measuring the tongues of his bees, in order to select those he breeds from. I noticed, particularly, that the choicest colonies were a little "off color," and, by a person not experienced in this particular, would be considered hybrids.

The ability to gather honey should be taken into consideration above every thing else (for it is the honey we are after), and among the other essentials are prolificness, industry, gentleness, and lastly color. Friend W. states that his brightest colored Italian bees do not store the amount of honey that the darker ones do, and that he can clearly distinguish a difference of a sixteenth of an inch in the length of tongues possessed by some colonies over others. Taking these facts into consideration, would it not be well for our friend to make haste slowly in his decisions?

JNO. Y. DETWILER.

Toledo, O., Oct. 6, 1879.

Ladies' Department.

THIS has been a very poor honey season here. Bees swarmed well, but, for some cause, they have gathered very little honey. White clover, basswood and buckwheat all bloomed well, but did not seem to yield any honey, and I never saw fall flowers as plenty as at the present time. Our black bees made but very little white honey and no fall honey at all. Our Italians did a great deal better than the blacks. I don't think we will have four hundred pounds all told. We will have to feed some of our bees or they will not winter through. We have about seventy colonies now but intend uniting some. Bee culture isn't much of a success here. It is a poor locality for bees. It does not look very encouraging to bee keepers, and if bees die off this winter as they did last you will have to add another page or two for blasted hopes, although we lost but 1 out of 37. I never saw bees rob as they have this summer; we could hardly open a hive all summer but the robbers would pounce upon it like so many boys at an empty sugar barrel. The Alsike clover we got of you grew nicely; but when is the proper time to sow it? Some say in the spring. But I must close, hoping you will not have occasion to put my name in blasted hopes.

East Hickory, Pa.

MRS. G. W. SIGGINS.

You women seldom get into Blasted Hopes, Mrs. S., for you are not easily discouraged. Sow Alsike at any time almost, but spring is preferable.

THAT MATCH BOX ATTACHED TO THE SMOKER.

I think a match safe would be an improvement to your smoker, and that one could be put on the opposite side to the handle. It should be made either square or half round, with a lid opening to the left and clasped, and would hold a penny's worth of matches.

Redding, Conn., Oct. 13, 1879.

MRS. JORDAN.

Thanks, Mrs. J., we will try and see what we can do with your idea. We want the match box out of the way, and it will not do to have it too near the fire, or we should have the matches going off prematurely. When we get it to suit, we will have an engraving of it, and will at least give you your share of the credit.

DEPOSITORY OF

Blasted Hopes,

Or Letters from Those Who Have Made
Bee Culture a Failure.

THE A B C SCHOLAR WHO "OVERDID" FEEDING.

IHAVE received GLEANINGS and read it through twice. I gather much from it, but much of your advice don't "jibe"; as, for instance, you say "Crowd them up in preparing for winter," &c. Now I find, in every hive, if I crowd the combs near together, they immediately *fasten* them all together, or 2 and 2, or 2 and 3 together. Cutting and pulling them apart *jars*, and then they go for me. I never dare open and look through my hives without a veil, and I am slow and careful too. Give me Italians though for peaceableness. Then again, you say, *feed* to start and keep up brood rearing. I have fed 100 lbs. coffee A syrup to 10 hives, (about $\frac{1}{2}$ lb. to each, nightly) during the last month, in a 2d story (empty of frames), and "nary" a brood in any of them. They have none of them made honey enough to carry them one-half through winter. I shall have to feed at least a barrel, and have not had a pound of surplus, so bee keeping *don't pay* this year; but I am a rather stubborn man, and shall try to winter them over, and try it another year. My friends laugh at me for spending \$100, for bees, &c., getting

no return, and then *feeding* them a barrel of sugar. My better half says, I would better put sugar in the house, and bees in the fire.

That queen that reared beautiful Italian workers for a month, and then only hybrid drones, is still there, and so are the drones. It is the only live remaining drones, and there are quite a lot of them. All brood has hatched. They were in worker cells, and quite regularly placed in the centre of two combs. She is a good sized queen.

I find my syrup in about every cell in each hive, and queens crawling about unable to find empty cells. I put fdn. in the centre, and as fast as it is drawn out it is $\frac{1}{2}$ filled with syrup, so the queen can't lay if she wants to.

I have black and Italian and see no difference. They have almost *no* sealed stores, but it is scattered all over 10 frames, or 8, as I may have in the hive. How can I crowd them on to less frames and not have them fastened together? I have raised $\frac{1}{4}$ acre of sugar beets, and I thought of trying the very thing you mention; that is, to see if bees will take up *bret* juice as well as *cane* juice. I have some bouncing beets.

B. S. BINNEY.

Shirley, Mass. Oct. 7, 1879.

Do you mean to say, friend B., there is not a particle of brood in any one of your 10 hives? I should hardly suppose it possible that you fed *all* of them until such was the case. I would hold on a little, and feed less. If there are plenty of bees, and a good queen in each hive, it seems to me there *must* be brood, in some of them. I fear you have misunderstood me in regard to crowding the bees up on a small number of frames; the frames should never be nearer than about $1\frac{1}{2}$ inches from centre to centre. This distance is obtained pretty nearly, by moving the frames so close that the point of your forefinger will just go between the projecting arms of the frames. If the combs are bulged with stores along the top bar, they will often touch there, and be fastened together; but these fastenings will readily break when you attempt to remove the frames. If your combs are all so full that the queens can find no empty cells, I do not see how you need to feed a barrel more. If you put a good, warm cushion over the frames, I think the bees will seal up their stores faster. Bid your wife be patient; my wife felt pretty much the same way when I first commenced, but when, a year or two afterward, we got over three tons of honey, she was the first one to wish the basswood yield would stop, for she said she *knew* no one would ever want so much of it, and the weight of it was breaking down the wood house.

We clip the following from the *Cincinnati Grange Bulletin*, of Oct. 23d, thinking it may be interesting to our readers after perusing Mr. Jones' report on page 434 of this issue:

THE MOST EXTENSIVE BEE FARM IN THE WORLD.

Near the village of Beeton, Ontario, Canada, there is a bee farm which is probably one of the most extensive and successful things of the kind in the world. It consists of four bee yards situated at the angles of a square which embraces several square miles of country. The current year, so far, has proved favorable for honey. Mr. D. A. Jones, the owner, had at the end of July already secured 37,000 pounds of honey from 620 stocks of bees. The hives used are oblong pine wood boxes, with a cubic capacity of 3,240 inches, the inside measure being 15 by 18 by 12. The proprietor expects a total yield for the year of 70,000 lb. of honey from his 19,000,000 little workers, in which case he would net between \$7,000 and \$10,000 for the year's product, without taking into account the sale of swarms or of queen bees.

The contents of this leaf and the one following are not directly connected with the subject of bee-culture. On this account, I make no charge for them, and, if you choose, you can cut them out without reading.

Our Homes.

And if thy right hand offend thee, cut it off, and cast it from thee: for it is profitable for thee that one of thy members should perish, and not that thy whole body should be cast into hell.—Matt. V. 30.

MY friend, did you ever, in childhood, get a sliver in your finger, and refuse to let your mother get it out, because you could not bear the pain? Perhaps you let it go until next day; and when you awoke in the morning, it was festered, swollen, and painful. Then, in spite of the fact that you had told her the day before you would rather bear the pain and let it be, you now reluctantly go to her for advice and counsel.

"My child," says she, "you must let me get it out; it will be much more painful now, than it would have been yesterday, but every hour will make it worse, and the sooner it is done, and the pain over, the better."

"O mother, it is so sore now I cannot bear to have it even touched; indeed I cannot, I cannot; O dear! what shall I do?" and because you can do nothing else, you have one of those big cry's that we all remember so well, in childhood. If you do not remember, just stop and take a good look the next time you see some juvenile in real trouble.

Mamma says nothing, but goes and gets a needle, and a sharp fine pointed knife. She puts out her hand to you in silence, and you now come to her, for where else in the world can you go? Your father would take it out, in no time, but you would far rather have her do it, because—because—why? He loves you as she does, but somehow she thinks more of the little aches and pains a child finds so hard to bear, and as she puts her arm around you and gives you a kiss before undertaking the fearful surgical operation, it seems as if that caress took off about half of the pain already. She knows, and she herself feels every twinge, almost as much as you do. By and by, when you almost begin to feel as if you *could* not have it cut into any more, the sliver has been reached, the accumulated matter is released, and the pain is certainly abating. Finally you are actually smiling through your tears; and as the "naughty old sliver" comes out, you laugh and cry altogether. When the trouble is all over, you say,

"I am so glad it is out, mamma, and I will, next time, to have it out first, and to remember that you know best."

I remember a boy's coming into my store, a few years ago, crying so that he could not speak. In vain, I tried to gather from his broken words what the trouble was. Finally it came out. How like the boy with the sliver in his finger! It seems he had been in the store with several boys, and they were looking at some little horse shoe magnets. One of them, partly in sport, and partly in something worse, slipped one of the magnets into this boy's coat pocket. They all went off, and he reasoned, boy fashion, that, as

he did not put it there, it was not stealing to keep it. He went to bed at night, but it would not lie straight on his conscience, and by some means, I know not how, he came to me and "owned up." As I took his hand, and told him I should always remember him for a boy who meant to be honest, his smiles through his tears were not very far different from those in the picture I gave you before.

Later in life, I saw a friend who refused to give up a piece of property when circumstances seemed to indicate it would be best. There was no disagreement in regard to the price, but my friend seemed rather to be sticking for what he thought his rights, to sell or not to sell as he pleased. I happened to be near, when the better spirit conquered, and remember one expression made. After the promise was given, and the conditions agreed upon, a smile took the place of the heretofore determined look, and something to this effect was said:

"I feel a great deal happier than I have for a long while, and I would have given it up long ago, had I known I would have felt so much better."

I know, my friends, how hard it is to give up, when we have got it into our heads, that it is right to hold on, and I know that it sometimes seems like giving our very right hand, to confess we have done wrong, and make the first move toward getting into the right spirit; but if, after making a start to relent and to do the disagreeable duty, we feel that happy approving voice of conscience, we may be pretty sure we are in the right track. Sometimes I catch myself speaking harshly of some one, and censuring severely what I and the rest of community feel to be a very wrong and wicked course. After a little, the voice of Conscience says, "If you think the brother or sister has done wrong, why do you not go to them and tell them so, instead of speaking to others about it?" Conscience has "got me," to use a slang phrase, and there is no evading her voice. I may say I wish I had not talked as I did, but it is done, and the best amend I can make is to take up the cross. I start out, and even though I have been through the experience dozens of times, I begin, as I come nearer the individual, to experience the same feelings I described, when I went to visit the intemperate man who did such heavy service among our saloons, about a year ago. I begin to feel that it is a most strange and unheard of thing, to go complaining to some body who may, perhaps, be almost an utter stranger, and I often feel as if I would rather be whipped, knocked down, or even pounded, if I could be excused from the duty that conscience holds up before me. I say to myself, I know it is a mistake this time; but conscience replies, "You thought so before, but how did it turn out?" But there are peculiar reasons why I should not go this time, and I am *sure* I am making a mistake. Conscience now takes me to task a little severely, for my cowardice and want of faith.

"You admit that you have never made a mistake yet, and that you have never failed of receiving that approving voice, when you have taken up these little crosses; go right

along like a man, and do your duty, and, if you should find you have made a mistake once, remember it was a mistake in trying to do God's service, and it will show your zeal in his cause, if nothing more."

Off I start in the dark, praying meanwhile for strength, courage, ability, energy, wisdom, and all that seems lacking. If my path is among those who are poor and needy, I do not mind it so much, for I can almost always give help by throwing employment in their way, or something of that sort, but when I am sent to meet a man of the world, who has wealth and plenty, and is perhaps far wiser than I, my faith fails. Perhaps I will go on past his house, trying to get up courage. As in the case of the boy with the sliver in his finger, delay is only a waste of time, and I have less courage, instead of more. Sometimes, in sheer fright, I turn about and start home, but the voice of conscience pulls me up again, and tells me that if I begin a retreat, I shall be likely to back out even sooner. Think of retreating before you have even caught a glimpse of the enemy. David had a sling and some pebbles, but I have nothing, not even an excuse for my call; but the same God that went with David is with me.

After I have once entered, Satan seems to have "given up the job". Perhaps he starts off for some one else, with whom he can make more headway. I know it is well to have these struggles, for I should not pray did I not fear, and I should also be relying on my own strength and wisdom. When I am afraid of my own abilities, and depend upon and expect God to help me, I get along much better. I am ushered into the presence that I so much dreaded, but all dread and fear is all gone. I always ask permission to speak before going into details, and it has never been refused, although, sometimes, it seems given a little reluctantly. When I get into my work, I seldom think of the lapse of time, and when the time comes for me to leave, I think of the different way in which I go out of the door entered so tremblingly. Generally, I leave friends that, something tells me, will stand by me, for the rest of my life, even though they do not have the faith and belief in God that I have. How different is my walk home! Before I went tremblingly, and praying step by step for help; now I step joyously, finding my heart so full that it is hard to keep from singing hymns of praise and thanks, even at the risk of having passers by think me crazy again. As I lay my weary head upon the pillow, I am happy, very happy; and as slumber begins to steal over my senses, then comes the feeling that invisible presences are gathering round me, and bidding me remember that I am not alone, but that

They that wait upon the Lord shall renew their strength; they shall mount up with wings as eagles; they shall run, and not be weary; and they shall walk, and not faint.—Is. XL. 31.

But, is there not such a thing as getting an idea that we are called to do a certain thing, when, really, we are moved by some other motive or influence than the one God gives us? Without question, my friends; but, in such cases, the approving voice of

conscience never follows. I think this voice, after an act has been performed (if not before), will *always* tell us when we are in the right. A great deal depends upon what our habits have been in the matter; for I know, by past experience, that the voice of conscience may be stilled, in time, so that we shall be scarcely conscious of its warning. One who seeks and prays for this evidence, will learn to hear its calls, almost as if it were an audible voice. I have told you before, how this voice seemed to direct my course during the Home Papers written last spring. I sometimes wondered whether it were not possible, that I had strayed into some of the by paths spoken of by Bunyan in his "Pilgrims Progress," and whether it might not be that I was getting into wild and mistaken grounds. The feeling, which I have tried to illustrate, by the boy who decided to have the sliver out, and the one who confessed about the stolen magnet, and the individual who gave up the property, is exactly the one I felt, after each number of the journal came out.

Another verse of the little hymn used to be almost constantly with me.

Let the world despise and leave me,
They have left my Savior too;
Human hearts and looks deceive me,
Thou art not, like them, untrue.
And whilst thou shalt smile upon me,
God of wisdom, love, and might,
Foes may hate and friends may scorn me,
Show thy face, and all is bright.

I really believe the very happiest hours of my life were during the height of public feeling against me, and, in breathing the last four lines of the little hymn above, it seemed as if the very presence of my Savior were going about with me through my daily duties. My poor wife lost courage and faith and worried about it when I was absent at my work, but when I was present, her faith returned. Said she one day, "When you are away, I see troubles insurmountable, but when I see your face, and hear your cheerful voice, all doubts are gone at once, and I have not a particle of doubt but that God is with you, and will take care of you." Those days were so very quiet and peaceful, without a single chiding voice from conscience, that I began almost to wonder if she had not deserted her post, and I had gone crazy, as the people said; but, in less than one hour after that thought, God showed me the fallacy of it.

It was Saturday, and a comb fdn. mill had been positively promised by a certain time. By some carelessness, the wood work for the stand had not been sent to Mr. Washburn, as it should have been. As there was no school, I told my boy to get up the horse and wagon, at once, and take it up to Mr. W's shop, and that he must also deliver some lumber to another man, enjoining him to be sure and do it right off. The roads were terribly muddy, as they are often here in the spring of the year, and it was almost all a horse could do to draw an empty wagon.

Towards noon, Mr. W. came down for his wood work.

"Why, did not Ernest bring it to you?"

"I have not seen him."

I made inquiries. Finally, one of the

hands said he came down with the wagon, but that some one told him it was too muddy to draw the lumber, and so he took the horse and wagon back home.

"But, I have been in the office all the time; why did he not ask me who gave him his orders, before taking advice from some one else?"

I finally found that Mr. Gray, not knowing of the fdn. mill, had supposed all he came with the horse for, was to carry the lumber, and he had told him it was too muddy. It was simply a misunderstanding, but I reasoned that my boy, when he was right close to me, should, at least have notified me who gave him his orders, before going back home, through the deep mud. As I also told him most emphatically, about the fdn. mill, I could not see any excuse for such vexatious conduct. I forgot that one of the most natural and besetting sins of boyhood, is a want of thoroughness and care, until they have learned the need of it by experience. I was fast getting into a mood, to scold severely, and the more I thought of it, the more my "righteous(?) indignation" rose up, and in spite of the voice of conscience to look out, and "go slowly," I pushed ahead, got my hat, and started for home with rapid strides. On my way, conscience kept warning me, and I had no doubt then, about its being there all right, but my old self kept saying that man must have his fdn. mill as agreed, and that my boy ought to be taught a lesson, for such heedless disregard of what I told him to do. I forgot his good points, and I forgot that he never objected in his life, to any thing I asked him to do. Alas, I forgot all, but to rush ahead on the spur of the moment. Satan had got hold of me for the time being, and he was not slow to use things to his advantage. On the way, a neighbor stopped me, and commenced remonstrating about my course in the Home Papers. Without breathing a prayer to God, and trusting to him, I commenced defending myself. Conscience again implored me to stop, and as we got to talking so loud that the neighbors were looking that way, and passers by overheard our words, conscience spoke in words that fairly made me tremble, saying,

"Stop! Stop! STOP! If God is going to take care of you, must you take up the cause in the streets?"

I did stop then, and hung my head like one condemned. Remorse commenced at once, but I was not conquered for all that; I was simply smarting under its sting, and feeling out of patience with myself, and all the world beside. Just then, my boy came along. I tried to commence mildly, but the more I said, "the more I felt like saying more." He, poor fellow, confessed his fault, that he had forgotten what I said about the fdn. mill, and he did not think to go to me when he had the horse down at the factory. Notwithstanding, I pressed on, and then ordered him, a young man larger and heavier than myself, peremptorily, to get the horse *this instant*, and follow my bidding. He went off without a word, and, for a little while. I tried to feel I had done right. Satan gave a little comfort and encouragement, by saying it was my duty to teach my boy to be prompt

and thorough, but soon commenced that awful remorse. That gentle spirit and presence I had had for days and weeks past was gone, I was an outcast on the face of the earth, like Adam and Eve, after their transgression. I dared not pray. Oh! what would I have given, to have had those hard, cutting words back again! I wandered to the factory, and then back home, but the boy had told his mother, and, amid his tears, had declared he would go away, and work for some one else. He had lost all faith in me, and at this critical moment, when it was most important that his faith in his father should be unshaken, he condemned me in the whole, and perhaps like the rest, thought me crazy and not to be trusted. I prayed God to forgive me, and I asked my boy's forgiveness, but, for the first time in his life, he replied to me with coldness, and a sort of indifference.

O ye fathers, I implore you, beware how you "provoke your children to wrath." Let your property go, let your money and your customers go; but do not let the respect and confidence of your grown up sons depart from you. Speak gently, reprove kindly, and let not your after days be haunted by the memory of bitter words spoken in anger, between you two.

Alone in my room, I plead for forgiveness, and asked God to take me back to himself, and to restore my boy. The answer seemed to be that these demons go not out without long fasting and prayer, and I was told I must regain my boy, by my daily conduct in the future. I have told you, reader, about the boys who are so *sure*, that they will never get drunk again. Well, I fear I was too sure, that in my own strength I would never scold again. It is now the worst besetting sin I have on earth, to get out of patience and scold stingingly. I generally pull up pretty soon, but I ought to pull up before I get started.

Now there is a moral to this experience after all. The moral is this: One who is praying earnestly to be guided every step of his life, will always be told when he is doing wrong. *Conscience never sleeps, and lets men go crazy, without a warning voice.*

It seems my faith was to be tried with some *real* trials, instead of talk simply. Public attention, in our town, had been turned toward my "Bee Gleanings" as they termed it, as it had never been before. The editor of our county paper is also post master; he remarked that my journal was but an advertising sheet, when we came right down to it, and it ought not, by good rights, to be allowed to go through the mails, at journal rates. I thought this pretty hard, but allowed the subject to pass by. A few days afterward, he came to me with an official paper bearing the stamp, Washington, and signed by the Post Master General, declaring that the publication known as "GLEANINGS IN BEE CULTURE" had been declared unavailable at pound rates, under the section including periodicals whose primary purpose was to advertise the editor's business. I, of course, remonstrated, and asked who it is that decides these matters. He showed me

a law, wherein this duty is assigned to the P. M. where the magazine is mailed, and stated that he had pronounced it an advertising sheet, but, to be sure, had mailed a copy to Washington, and they had also so decided. I made inquiries of those who should know in regard to getting such a decision revoked, but it seemed pretty certain that a decision made by the P. M. G., whether right or wrong, was seldom if ever recalled. (Queens by mail for instance.) It was like the law of the Medes and Persians. I asked our P. M. what feature of my journal I should remove, in order that it might pass through the mails. If I recollect aright, his reply seemed to indicate that it was all objectionable. I do not wish any of you to think hardly of the man, for he has many excellent qualities, and, I believe, thought he was faithfully discharging his duties, according to the law.

I remembered the lines,

"Man may trouble and distress me
"Twill but drive me to thy breast,"

and,

"Foes may hate, and friends may scorn me,
Show thy face, and all is bright."

I went off alone, and told God all about it. The answer came very quickly, "All things work together for good, to those that love the Lord." Now, the point was, "Do I really love the Lord and my fellow men, or do I love to have all the business in furnishing bee supplies, and is not the real primary purpose of my journal to build up my establishment, and make a great show in the world? What is the primary purpose of the publication of GLEANINGS?" It did me good to go over the ground, and as I prayed over it, it occurred to me that God had sent this trial, to caution me in regard to selfishness, and that GLEANINGS might be remodeled into a shape, where it would do more good. I wrote briefly to the P. M. G., asking what features of our journal must be omitted to allow it to pass through the mails, sending them copies of our letter heads, envelopes, &c., consenting to the giving up of the manufacturing business, and every advertisement of any thing I had for sale from its columns, if it was demanded, and closed with something like this:

"I do not know, to whom I am writing, whether it be to one who believes in the Bible and Jesus Christ or not, but, if I know myself, the primary purpose of GLEANINGS is to serve the Lord Jesus Christ, and to benefit my fellow man; and especially to this end are the last two leaves devoted. In behalf of the hands I employ, and the many whom GLEANINGS helps, I beg that your decision may be revoked."

I told the hands at the noon day service of the blow that threatened us, and I told them, too, that unless God helped us, I knew not where to go for help. The decision excluding GLEANINGS came just after our April number was mailed; and before our May number was out, one day, one of the clerks called from the top of the stairway, and saying "Good news!" sent a paper floating down, which fell at my feet. I raised it and read as follows:

WASHINGTON, April 25, 1879.

The decision of April 1st, 1879, excluding the publication named GLEANINGS IN BEE CULTURE from going in the mails at pound rates, is hereby revoked.

Signed, JAS. H. MARR, First Assistant
Washington, D. C. Post Master General.

As I give the above from memory, I may not have got the wording exactly, the paper having been mislaid.

Furthermore, the news also came that, instead of paying 3c. per lb. as I had heretofore done, GLEANINGS could go at two cents per lb., and sample copies, for which we had before paid eight cents per lb., could also go for two cents per lb. Now, do you know that the greatest motive I have had in giving away these thousands of sample copies yearly, has been that the last two pages might, like tracts cast by the way side, reach hearts and do good, even if they did not bring subscribers and customers. If you, dear reader, should care to have any of the Home Papers go to any one you know on this wide earth, just send us the name and address, and it will be sent them cheerfully, whether they are bee keepers or not.

At our noon day worship, I read the paper to the hands, and we had a rousing singing of the little hymn, "Praise God from whom all blessings flow." Just try, my friend, giving up something, or taking up for Christ's sake, some task, that seems like cutting off your very "right hand," and see if a blessing does not come of it.

The following letter from one of our young friends, shows how this spirit may help beekeepers.

MR. ROOT, Dear Brother:—I call you brother because I feel that we are brothers in Christ. Please bear with me. I want to come to you this morning as to a father. Your "Home Papers" have caused me to place implicit confidence in you. I believe you are earnestly trying to overcome all your bad qualities, and I think if the duty of Christians to give each other an encouraging word now and then; this is the reason we should heed the admonition, "Forget not the assembling of yourselves together."

Dear Bro., do not let the Home Papers die down; they help us lonely beekeepers when we are in trial—help us to "look up."

I must tell you something about my bee keeping. I started (four years ago) with one swarm, when eighteen, helped a neighbor log one day with the oxen to pay for it. I have found it a pleasant study, and have spent many happy hours among them. Shall start into winter with 26 swarms; all are Italianized. The past season I have had a great call for queens, and felt that I needed an imported queen. I decided the matter in Aug. '79. You did not have any on hand at that time, and Miss Andrews did; so I sent her a draft for \$5.00. In 3 days, I had the queen safe at Randolph, and liberated safely on 4 combs of hatching brood. Everything was done according to the best knowledge I could glean from GLEANINGS. In 5 days, I could scoop out little "naughty" larvae to graft into queen cells. Oh! how happy I felt! Just to think; a queen of known purity, come across the great water, owned by unworthy O. F. Bowen!

About this time, I had to go to Hornellsville, N. Y., to help fix up a camp ground. I left my queen in care of brother Tyler. He fed that nucleus every night, so when I got home she had two combs partly filled with brood. I now set about preparing bees for wintering. This 4 frame nucleus was not strong enough to winter, so I decided to unite it with a good queenless stock by its side. I caged the imported queen, and united the bees. They commenced clustering on the cage, and building cells on her brood. I cut out the cells, and, in two days, they ceased to knot themselves on the cage, so I ventured to liberate her. She crawled about among the bees and they acted kindly to her. In 10 minutes, I raised the frame she was on, and all appeared right; the bees were performing their usual ceremonies.

In 15 minutes more, I looked again; she was on the bottom board, with bees piled on top. I gave them a puff of smoke; the bees got off, and she darted out of the hive, quick as flash, up,—up. I watched faithfully till dark, but she did not come back. Then these words came to mind,

"Have we trials and temptations?
Is there trouble anywhere?
We should never be discouraged,
Take it to the Lord in prayer."

I felt badly. I went way back in the sugar bush, and prayed (kneeling by a maple) to the Good Father. He seemed near and precious to me. I then could realize that I had thought too much of that queen. "Thou shalt have no other gods before me." I now could see that I had let that queen get between me and my Saviour, although I had not meant to do any such thing; but our cruel enemy knows just how to deceive us, and entice us away from God.

I tell you truthfully Mr. R., I was a happy Christian when I came from the woods, which was bed time. Next morn I watched for the return of the queen but have looked in vain. I am to day without an imported queen; she is not in any of the hives.

Please write to me *yourself* when you can spare the time. I know you have good clerks, but I want some of your own words. It would do me lots of good to get a letter from you.

O. F. BOWEN.

Randolph, N. Y., Oct. 3d, 1879.

I am glad to be able to add, that God sent our young friend another imported queen; he always sends his children every thing they need, just as soon as he sees he can do so, without doing them harm rather than good. It was brought about by sending me a large lot of fine ones, at so low a price, that I was enabled to help some of the unfortunate ones, at a price that was within their reach. "Only trust him."

I often think since seeing your wonderful Encyclopedia of Bee Culture, the A B C series, of the lines in Goldsmith's "Deserted Village."

"And still they gazed, and still the wonder grew,
That one small head could carry all he knew."
Blountsville, Ala., Oct. 2, '79. A. W. BRYAN.

[Now, friend B., I just think that is too bad to go to abusing your old friend in that way, after he has done the best he could. If you don't stop, I will get mad and go off, and never write any more at all for you.]

RASPBERRIES AS HONEY PLANTS.

You say that you are going to plant a field of raspberries especially for honey. If so, and you have a side hill that you don't wish to cultivate but one or two seasons, on account of wash, &c., or if honey is the first object and fruit second, and you don't wish to cultivate them, plant Brandywines; for they will take the ground and keep it, sprout thoroughly, and sell for the highest price among red berries. If you wish to cultivate and fruit is an object as well as honey, plant Sweet Homes.

D. D. PALMER.

New Boston, Merceer Co., Ill., July 21, '79.

Bees have not made much honey in this country this season. It has been the worst honey season for many years. The most I have got from a hive has been 40lb.

HONEY FROM RED CLOVER.

Tell E. E. Hasty that I have red clover that our bees have worked on all the season, on first, second, and third crop. I think I got more honey from red clover than from any thing else.

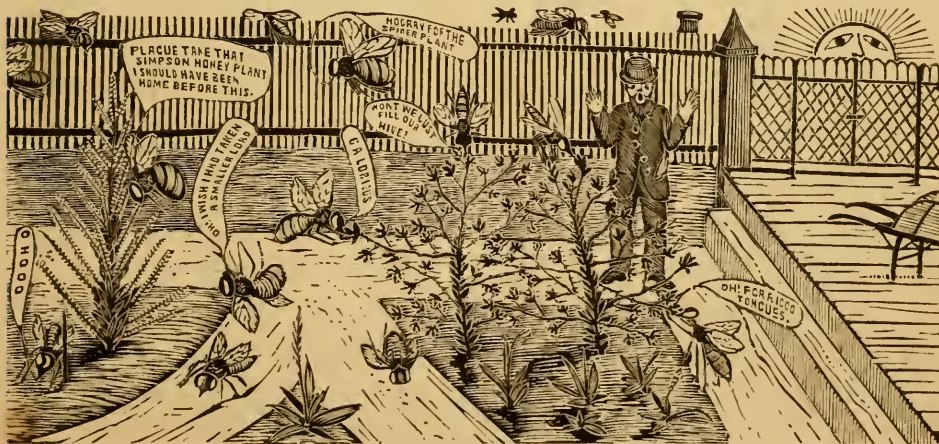
SUN FLOWER AS A HONEY PLANT.

But I have never seen bees work on Sunflowers, and I have raised them for ten years and I have watched closely. D. D. LIGHTNER.

Hubart, Lake Co., Ind. Oct. 1, 1879.

[Italians always work on red clover with us, and sometimes on sunflowers; but, this season, although we have raised a large crop of the latter, the bees have worked on it so little, I shall hardly dare to class it with honey plants.]

OUR CARTOON FOR NOVEMBER.



THE BEES AND THE SPIDER PLANT.

DRAMATIS PERSONÆ.

NOVICE, *who has just got up.*

THE BEES, who have just "got up" too.

"OLD SOL," who has just "got up" too, and who seems to have a lively interest in the proceedings, as he shows his "shining face" just over the top of the wire fence.

TIME AND PLACE.

SCENE,—*The flower garden adjoining the Factory.*

TIME,—*Half past five o'clock, in the morning, Oct. 11th.*

For particulars of the "play," see page 430.

SYMPHORICARPUS VULGARIS.

SINCE your notice in GLEANINGS of the *Symphoricarpus*, I have had many letters and postal cards concerning it, some containing stamps, and requesting their value sent in plants and seeds. I have complied with their requests up to this time, but so much letter writing taxes my time and pocket so much that I would have you tell them, through GLEANINGS, that I will send, post paid, by mail, six or more plants at 10c. per plant, or 5c. per plant for fifty or more, if sent by express. Money sent in 3c. stamps, or post office order if over 60c. That price will not more than barely compensate for cost, and time consumed in procuring, packing, and delivering to the office.

For 15c. in stamps, I will send a package of seed; but the best way would be for several persons to join, and have a box of plants sent by express or freight. Our nearest rail road communication is twenty miles, with stage daily to Warsaw. We will have a rail road to Warsaw by next April. I am willing to accommodate the readers of GLEANINGS in any way I can. I do not suppose there will be demand for plants sufficient to pay for planting a nursery, and advertising them for sale, but will do what I can to oblige our brother bee-keepers.

Warsaw, Mo., Oct. 25, 1879. W. C. SMITH.

We have to-day, Oct. 31st, 4368 subscribers.

We are compelled to advance the price of tin separators to \$1.75 and \$2.25 per hundred, instead of the price given in the price lists you have.

SINCE the rise in iron, nails have come up about 2c. per lb. above the list price, given in Aug. GLEANINGS.

It is now October 30th. We have had another frost, and a heavier one, and the spider plant has stepped off the stage, no more to appear until next July, unless Novice shall coax her into earlier blooming, by some sort of an arrangement to start the plants in doors.

WINTER PASSAGES.

IF your combs have no holes in them, I think it would be well to make winter passages, say one in the centre of the comb, about 2 inches below the top bar. A sharp stick will do it very well. With the L. frame, two holes, about 4 or 5 inches apart, would be still better.

ARE YOUR BEES READY FOR WINTER?

I HOPE our readers have all their bees in winter trim by the time this reaches them. If in chaff hives, with sealed stores all around the cluster, and the upper story nearly filled with chaff, either loose or in a cushion, they are, so far as I know, in as good condition as you can well have them. If the colony is not strong, I would reduce the 8 inch entrance to about 2 inches. Pushing bits of woolen cloth in at each side will make a sure joint, and one that will keep out wind. If the bees have not stores enough at this late date, it will be a pretty hard matter to feed them liquid food, but it may be done, on warm days, by crowding the cushion over enough to get a simplicity feeder in at one side. You can hold the cushion away, enough to let the bees up, by a block or piece of wood. A pepper box feeder may be used in the same way, and would be used, perhaps,

when the other would not. Candy may be fed any day in the winter, and I have wintered colonies on it successfully, when they had almost nothing else. Put it under the cushion right over the cluster. If you prefer to put them in the cellar, I would pack them in chaff the same way, and set them in some cool, dry day, and do it without bumping them. The cellar must be dark, frost proof, and dry, or you would better leave them out.

Conventions.

Notices of Conventions, condensed so as to occupy not over two lines, will be inserted free of charge.

CONVENTION DIRECTORY.

TIME AND PLACE OF MEETING.

1879.
Nov. 10.—Lancaster Co., Pa., at Lancaster.
Dec. 10.—Michigan Bee Keepers' Association, annual, State, at Jackson, Mich.
1880.
Jan. 13.—North Western Ill., and South Western Wis., annual, at Davis, Ill.
Feb. 11.—North Eastern, at Utica, N. Y.

GROWING BETTER!

We have the most flattering testimonials from the most eminent bee-keepers that the

Bee-Keepers' Exchange

is growing better at every issue. We are using every exertion to make the EXCHANGE both useful and entertaining.

The editor's business ability, tact, and thorough knowledge of bee-keeping, exactly qualify him to present a *really valuable* bee paper.

The very best proof of these statements is the fact that all who subscribe for the EXCHANGE, renew their subscriptions at their expiration. We guarantee the EXCHANGE to please and be worth the small sum asked, or we will refund the money. Send for a sample copy and judge for yourself. We want

1000 Active Agents

to work for the EXCHANGE, and offer as inducement to such, a liberal club list, and a magnificent premium list.

We send the EXCHANGE postage paid, to any address as follows: One yearly subscription 75 cents. Two subscriptions at one time, each 65c. Three to five, each, 60c. Five to ten, each 55c. Ten or over at one time, each, 50c.

Our December number will be issued November 20th, and will contain our Empire Club List of periodicals and a condensed price list of Apian Supplies. Do not fail to send for this. It will save you money.

To Advertisers.

We will circulate 10,000 copies or more of our December EXCHANGE to live Bee-Keepers. As the number will contain much that is valuable, it will be preserved. Advertisements must be here by the 10th of November, and will be received as follows: Six lines or less, per line, 40c. Twelve lines, (one inch), \$4.50. Twenty four lines, (2 inches), \$8.50. Four inches, \$16.00. One-half page, \$30.00. One page, \$50.00.

TERMS:—Cash in advance, or satisfactory reference.

Address all letters and remittances to

J. H. NELLIS,
Canajoharie, N. Y.

DOOLITTLE

Desires to place his Bee Keepers' Club List in the hands of every bee keeper in the land. If you wish to save money, put your address, plainly written, on a postal and direct to G. M. DOOLITTLE, 11d
Bordino, N. Y.

IMPLEMENTS FOR BEE CULTURE ALPHABETICALLY ARRANGED.

For description of the various articles, see our Twenty-First Edition Circular and Price List, mailed on application.

For directions *How to Make* all these various articles and implements, see A B C of Bee Culture.

This Price List to be taken in place of those of former date.

Mailable articles are designated in the left hand column of figures; the figures giving the amount of postage required.

To Canada, merchandise by mail is limited to 8½ oz., and nothing can be sent for less than 10 cents.

A B C of Bee Culture, Five Parts complete in one, paper cover.....		1 00
The same, neatly bound in cloth.....		1 25
Single Parts, in paper, each.....		25
15	Alighting Board, detachable (See A B C) \$	10
Aiskie Clover. See seeds.		
Balances, spring, for suspended hive (60 lbs.)		8 00
Barrels for honey..... waxed and painted....		2 50
Basket for broken combs to be hung in the Extractor.....		25
Basswood Trees for planting. See price list.		
Bees, per colony, from \$7 to \$16. See price list.		
10	Bee-Hunting Box, with printed instructions	25
0	Binder, Emerson's, for GLEANINGS....	50, 75
10	Blocks, iron, for metal cornered frame making.....	15
Buckwheat. See seeds.		
10	Burlap for covering bees, 40 in. wide, per yd	10
Buzz-Saw, foot-power, complete.....		35 00
Buzz-Saws, extra, 85c, to \$3.50. See price list.		
60	Buzz-Saw mandrel and boxes complete for 6 inch saws (no saws included).....	5 00
The same for 7 and 8 in. saws (not mailable)		7 00
3	Cages for queens, provisioned (See price list)	10
30	" " per doz.....	1 00
20	Candy for bees, can be fed at any season, per lb.....	07
Cans for shipping extracted honey (See Honey), from 25c to \$1.00.		
0	Cards, queen registering, per doz.....	06
0	" " per 100.....	40
60	Chaff Cushions for wintering (See A B C) ..	30
9	" " without the chaff.....	15
Chaff Hive (See Hives).....		5 00
Cheese cloth, for strainers, per yard.....		06
Clamps for making section boxes.....		75
10	Clasps for transferring, package of 100.....	25
Climbers for Bee-Hunting.....		2 50
Comb Basket, made of tin, holds 5 frames, has hinged cover and pair of handles.....		1 50
Comb Foundation Machines complete \$22 to 100 00		
10	Comb Holder to put on edge of hive.....	25
Comb in metal cornered frames, complete		25
20	Corners, metal, per 100.....	50
20	" " top only, per 100.....	60
15	" " bottom, per 100.....	40
Corners, Machinery complete for making \$250 00		
Crate for shipping comb honey. See Hives.		
40	Division Boards of cloth and chaff.....	20
12	Duck, for covering frames and for feeders, 29 inches wide, per yd.....	20
15	Enameled Cloth, bees seldom bite or propolize it, per yard, 45 inches wide, 20c. By the piece (12 yards).....	18
Extractors, according to size of frame, \$6 50 to 10 00.		
" Inside and gearing, including Honey-gate.....		5 00
" Hoops to go around the top.....		50
" " per doz.....		5 00
5	Feeder, Simplicity (See price list) 1 pint ...	05
7	Feeders, 1 quart, tin.....	10
4	" The same, half size.....	05
25	" The same, 6 qts, to be used in upper story	50
Feeders, open air.....		25
2	Files for small circular rip saws, new and valuable, 20c; per doz. by express...	2 00
" The same, large size, double above prices.....		
" 3 cornered, for cross-cut saws, 10c; doz		1 00
Foundation. See Comb Foundation.		
60	Fountain Pump, or Swarm Arrester.....	8 50
5	Frames with sample fabbit and Clasps...	10
18	Galvanized Iron Wire for grapevine trellises per lb. (about 100 feet).....	20
25	Gates for Extractors fitted for soldering..	50
Gauge for planing lumber, brass.....		50
" making hives (See Hives).....		50
50	Gearing for Extractor with supporting arm	1 25
Glass. See price list.		
0	GLEANINGS, per year.....	1 00
For prices of back vol's, see price list.		
Gloves. See Rubber Gloves.		
Grape Sugar for feeding bees. See price list.		
Grape vines for shading hives. See price list.		
Hammers and nails. See price list.		
Hives from 50c to \$6 25. See price list.		
Honey. See price list.		
" Plants. See seeds.		
0	Honey Knives, straight or curved blade...	1 00
"	" ½ doz.....	5 00
"	" ½ doz by Express.....	4 75
Jars for shipping extracted honey. See Honey.		
Labels for honey, from 25 to 50c per 100; for particulars see price list.		
Lamp Nursery, for hatching queen cells...		5 00
0	Larve, for queen rearing, from June to Sept.....	25
15	Leather for smoker bellows, per side.....	50
0	Lithograph of the Hexagonal Apary.....	25
0	Magnifying Glass, pocket.....	50
0	" Double lens, brass, on three feet.....	75
0	Medley of Bee-Keepers' Photo's, 150 photo's	1 00
12	Microscope, Compound, in Mahogany box	3 00
0	Prepared objects for above, such as bee's wing, sting, eye, foot, &c., each	25
7	Muslin, Indian head, for quilts and cushions, pretty stout, but not good as duck, per yard.....	10
Nails. See Hammers and nails.		
0	Opera Glasses for Bee-Hunting.....	5 00
18	Paraffine, for waxing barrels, per lb.....	20
0	Photo of House Apary and Improvements	25
Planes and Planers. See price list.		
15	Pruning saws for taking down swarms, 75 and 85	
0	Queens, 25c to \$6 00. See price list.	
1	Rabbits, metal, per foot.....	02
0	Rubber Gloves, \$1.50 and \$1.75. See price list.	
Rubber Stamps, \$1.50 to 3.00. See price list.		
Rules. (See Pocket Rules) 12 and 20c.		
0	Salicylic acid, for foul brood, per oz.....	50
10	Saw Set for Circular Saws.....	75
Saws. See Circular Saws.		
Scales for weighing honey, etc. See price list.		
Scissors, for clipping queen's wings.....		40
0	Screw Drivers, all metal (and wrench combined) 4½ inch, 10c; 5 inch, 15c. Very nice for foot-power saws.	
6	Section Boxes, fancy, hearts, stars, crosses, &c., each.....	05
Section Honey Box, a sample with strip of fdn. and printed instructions.....		05
Section Boxes in the flat by the quantity, \$6 00 per thousand and upwards, according to size; for particulars, see price list.		
15	Case of 3 section boxes, showing the way in which the separators are used, suitable for any kind of hive (See price list)	10
SEEDS OF HONEY PLANTS.		
18	Seed, Alsike Clover, raised near us, per lb..	30
18	" Catnip, good seed, per oz. 10c; per lb.	1 00
0	" Chinese Mustard, per oz.....	15
18	" Mellilot, or Sweet Clover, per lb.....	35
18	" White Dutch Clover, per lb.....	35
18	" Motherwort, per oz. 10c; per lb.....	1 00
18	" Mignonette, per lb. (20c per oz.).....	1 40
18	" Simpson Honey Plant, per oz.....	50
18	" Silver Hull Buckwheat, per lb.....	10
"	" " peck, by Express.....	75
"	" Common " per peck.....	50
18	" Summer Rape. Sow in June and July, per lb.....	15
18	" Spider plant, per oz.....	25
A small package of any of the above seeds will be sent for 5 cents.		
Separators, tin, for section boxes. See Section Boxes.		
5	Sheets of Enameled Cloth to keep the bees from soiling or eating the cushions...	10
Shipping Cases for 48 section frames of honey.....		60
The same for 24 sections, half above prices. This size can be sent by mail in the flat, for 75c.		
1	Slate Tablets to hang on hives.....	01

SMOKERS.

	Smoker, Quinby's (to Canada 15c extra)	1 50	1 75
5	" Doolittle's, to be held in the mouth		25
	" Bingham's	\$1 00; 1 50;	1 75
25	" Our own, see illustration in price list		75
00	Soldering Implements		1 00
	Swarming Box		75
2	Tacks, tinned, per paper, (three sizes)		05
	For larger quantities see Hammers and nails.		
5	Thermometers		20
10	Transferring clasps, package of 100		25
	Tin, see price list.		
0	Veils, Bee, with face of Brussels net, (silk)		75
	The same, all of grenadine (almost as good)		50
	Veils, material for, grenadine, much stronger than tarlatan, 21 inches in width, per yard		20
	Brussels Net, for face of veil, 29 inches in width, per yard		1 50
	Wax Extractor		2 50
	Copper bottomed boiler for above		1 50
5	Wire cloth, for Extractors, tinned, per square foot		10
2	Wire cloth, for queen cages		10
	Above is tinned, and meshes are 5 and 18 to the inch respectively		
3	Wire cloth, painted, for shipping bees, 14 mesh to the inch, per square foot		05
	Wire for grape vine trellises. See Galvanized iron wire		

All goods delivered on board the cars here at prices named. A. I. ROOT, Medina, Ohio.

Names of responsible parties will be inserted in either of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per year.

\$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent before July 1st. If wanted sooner, see rates in price list.

- *E. W. Hale, Wirt C. H. W. Va. 1-12
- *A. I. Root, Medina, Ohio.
- *H. H. Brown, Light Street, Columbia Co., Pa. 7-3tf
- *E. M. Hayhurst, Kansas City, Mo. 1-12
- *J. M. C. Taylor, Lewiston, Fred. Co., Md. 1-12
- *Paul L. Viallon, Bayou Goula, La. 8tf
- *J. Oatman & Sons, Dundee, Kane Co., Ill. 2-1
- Miller & Hollam, Kewaskum, Wash Co., Wis. 4-4
- *J. T. Wilson, Mortonsville, Woodford Co. Ky 4-4
- J. L. Bowers, Berryville, Clarke Co., Va. 7-12
- *King & White, New London, O. 8tf
- *F. J. Wardell, Ulrichsville, Tusc. Co., O. 12-12

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

- A. I. Root, Medina, Ohio.
- H. Scovell, Columbus, Cherokee Co., Kans. 4-3
- P. L. Viallon, Bayou Goula, Iberville Par., La. 9tf

FLAT-BOTTOM COMB FOUNDATION. High side walls, 4 to 16 square feet to the pound. Circular and samples free. J. VAN DEUSEN & SONS, Sprout Brook, Mont. Co., N. Y., Sole Manufacturers.

Growing Better!

We have the most flattering testimonials from the most eminent bee-keepers, that the

BEE-KEEPERS' EXCHANGE

is growing better at every issue. We are using every exertion to make the *Exchange* both useful and entertaining.

The editor's business ability, tact, and thorough knowledge of bee-keeping, exactly qualify him to present a *really valuable* bee paper.

The very best proof of these statements is the fact that all who subscribe for the *Exchange* renew their subscriptions at their expiration. We guarantee the *Exchange* to please and be worth the small sum asked, or we will refund the money. Send for a sample copy and judge for yourself. We want

1000 Active Agents

to work for the *Exchange*, and offer, as inducement to such, a liberal club list and a magnificent premium list.

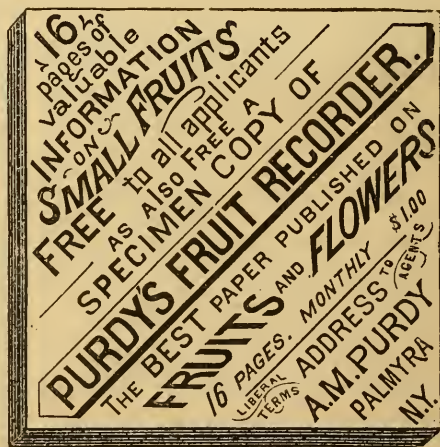
We send the *Exchange* postage paid to any address as follows: One yearly subscription, 75 cents. Two subscriptions at one time, each 65 cts. Three to five, each 60 cts. Five to ten, each 55 cts. Ten or over at one time, each 50 cts.

On trial 3 months for only 20 cents.

Our December number will be issued Nov. 20th, and will contain our Empire Club List of periodicals and a condensed price list of Apianary supplies. Do not fail to send for this. It will save you money.

Address all letters and remittances to

J. H. NELLIS,
Canajoharie, N. Y.



SEED-TIME AND HARVEST,

The Latest, Cheapest, and Best.

A New Illustrated 24-page Magazine devoted to the cultivation and improvement of our American Gardens. Price only Fifty Cents per year, and each number contains as a supplement a packet of some New, Rare, or Novel Flower or Vegetable Seeds, which alone are worth more than the subscription price. One sample copy free. Address—SEED-TIME AND HARVEST, La Plume, Lack'a Co., Pa. 12-3

Sections! Sections!

Before ordering elsewhere, send us a 3-cent stamp for a sample of our beautiful, snow-white, poplar Sections, dovetailed or to nail. These are the nicest and cheapest in the world. (This none will deny).

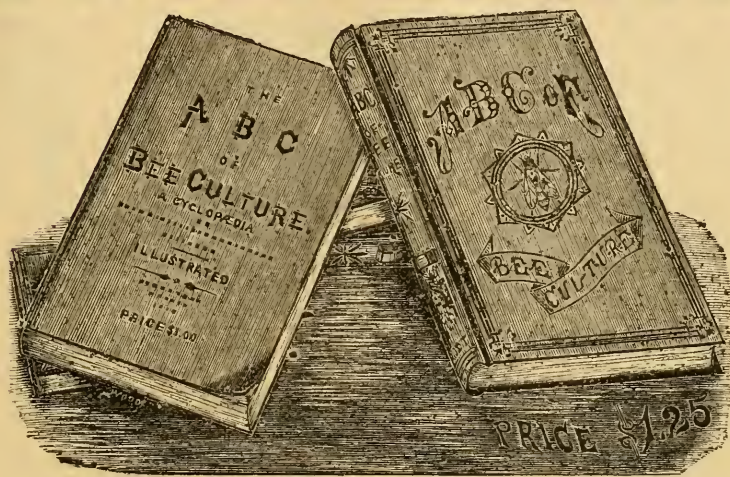
HIVES AND OTHER SUPPLIES

made to order very cheap. Illustrated circulars free.

A. E. MANUM,
Bristol, Addison Co., Vt.

THE

A B C of BEE CULTURE.



FOR several years, it has been my ambition to be able to write a book on bee culture, so clear and plain that not only any boy or girl, but even an old man or woman, with the book and a hive of bees, could learn modern bee culture, and make a fair, paying business, *even the first season*. This is a great undertaking, I grant; and it will require some one with far greater wisdom than mine, to do it the first time trying. After watching beginners, and answering their questions almost constantly, for years, I came to the conclusion, that the only way to do it was to "cut and try," as carpenters say, when they can't get the exact dimensions of the article they wish to make.

To cut and try on the A B C book, I have invested over \$2,000 in type, chases, etc., sufficient to keep my whole book standing constantly in type, that can be changed at a moment's notice. The books are printed only as fast as wanted, and just as soon as I see I have omitted anything, or have made any mistake, the correction is made before any more books are sent out. To show you how it works, and how it succeeds, I will give you an illustration.

A beginner writes to know if it is of any use to keep a queen, after she is eighteen days old and does not lay. Now I know very well that a queen should lay when from ten days to two weeks old; and also, that they will sometimes not commence until they are three weeks old, and then make good queens. Now, although I directed that they should be tossed up in the air, to see if their wings were good, when they did not lay at two weeks of age, I did not say, if their wings proved to be good, how long we should keep them. If I could spare the time of the colony, I would keep a good looking queen that could fly well, until she is 25 days old; if crowded for a place to put cells, I would kill all that do not lay at 15 or 20 days old.

I have just put the above in the A B C, and that is just the way I am going to keep doing. You see, you beginners are, ultimately, to build up the book.

The book, as it is now, contains about 275 pages and about 175 engravings. It is furnished complete in one, or in 5 different parts. The contents and prices are as follows:

Part First, will tell you all about the latest improvements in securing and **Marketing Honey**, the new **1 lb. Section Honey Boxes**, making **Artificial Honey Comb**, **Candy for Bees**, **Bee Hunting**, **Artificial Swarming**, **Bee Moth**, &c., &c.

Part Second, tells all about **Hive Making**, **Diseases of Bees**, **Drones**, **How to Make an Extractor**, **Extracted Honey**, **Feeding and Feeders**, **Foul Brood**, etc, etc.

Part Third, tells all about **Honey Comb**, **Honey Dew**, **Hybrids**, **Italianizing**, **King Birds**, **The Locust Tree**, **Moving Bees**, **The Lamp Nursery**, **Mignonnette**, **Milkweed**, **Motherwort**, **Mustard**, **Nucleus**, **Pollen**, **Propolis**, and **Queens**.

Part Fourth tells all about **Rape**, **Raspberry**, **Ratan**, **Robbing**, **Rocky Mountain Bee Plant**, **Sage**, **Smokers**, including instructions for making with illustrations, **Soldering**, **Sourwood**, **Stings**, **Sumac**, **Spider Flower**, **Sunflower**, **Swarming**, **Teasel**, **Toads**, **Transferring**, and **Turnip**.

Part Fifth tells about **Uniting Bees**, **Veils**, **Ventilation**, **Vinegar**, **Wax**, **Water for Bees**, **Whitewood**, and **Wintering**. It also includes a **Glossary of Terms** and **Abbreviations** used in *Bee Culture*.

All are Profusely Illustrated with Engravings.

Nothing Patented. Either one will be mailed for 25c; ½ doz., \$1.25; 1 doz., \$2.25; 40, \$6.00.

The five parts bound in one, in paper, mailed, for \$1.00. At wholesale, same price as *GLEANINGS*, with which it may be clubbed. One copy, \$1.00; three copies, \$2.50; five copies, \$3.75; ten copies, \$6.00.

The same neatly bound in cloth, with the covers neatly embellished in embossing and gold, one copy, \$1.25; three copies, \$3.25; five copies, \$5.00; ten copies, \$8.50. If ordered by freight or Express, the postage may be deducted, which will be 3c on each 25c book, 10c on the complete book in paper, and 12c each, on the complete book in cloth.

A. I. ROOT, Medina, O.

Conventions.

Notices of Conventions, condensed so as to occupy not over two lines, will be inserted free of charge.

CONVENTION DIRECTORY.

TIME AND PLACE OF MEETING.

- Dec. 10.—Michigan Bee Keepers' Association, annual, State, at Jackson, Mich.
 Jan. 13.—North Western Ill., and South Western Wis., annual, at Davis, Ill.
 Jan. 13.—Indiana Bee Keepers' Association, at Indianapolis, Ind.

UNTIL further notice, we will pay 22 c. in cash, or 25 c. in trade, for beeswax.

Our Medina Postmaster wishes it stated (see page 458 last month), that it was not his individual opinion that GLEANINGS should be excluded from the mails. He was simply undecided in the matter, and therefore sent a copy to Washington, etc.

Oh dear, Oh dear! this number is full, and much that I had decided must go in is crowded out; some nice pictures, too, including the prettiest match box (sent by mail for 10c.) that you ever saw, and can be used on any smoker. Oh dear!

A PRESENT FOR EVERY SUBSCRIBER.

Any one who sends us \$1.00 for GLEANINGS, before Jan. 1st, 1880, the subscription to begin with Jan. 1880 is entitled, for so remitting, to any one of the premiums mentioned below. We make this offer mainly to avoid, if possible, the necessity of taking down our subscription list at the end of the year, and the mistakes that always occur more or less in setting up a new one.

In ordering GLEANINGS, simply give the No. of the premium you wish.

- No. 1.—Two bee-keepers' badges, described on page 41.
 No. 2.—A one foot, boxwood, folding, pocket rule.
 No. 3.—A 10c. tray of new grape sugar candy.
 No. 4.—Any two, 5c. packages of honey plant seeds.
 No. 5.—A two oz. package of comb foundation.
 No. 6.—A pint bee feeder, either simplicity, Hains, or pepper box.
 No. 7.—A 10c. hammer. Or a good Glass-cutter.
 No. 8.—A lithograph of our old apiary.
 No. 9.—A sample of our Medina Co., white clover honey.
 No. 10.—Three samples of the new tin plates to give away with the honey, when retailing it.
 No. 11.—An all metal screw driver.
 No. 12.—A two quart honey pail, japanned and ornamented.
 No. 13.—A steel for your wife to sharpen her cooking knife on.
 No. 14.—A spring balance, to weigh 24 lb.
 No. 15.—A two horse steam engine and boiler—hold on! hold on! it won't go into the post office, but I will tell you what I will do. Since I wrote about the importance of every boy's having a pocket rule, I have sold many hundreds of the 12c. rules. Well, I talked, too, about every boy's having a good, sharp, pocket knife, and I have been looking for one that just suited me a whole year, and it has just come. Look at it.



OUR 15c. AMERICAN POCKET KNIFE, FULL SIZE OF CUT. SENT BY MAIL AT THE PRICE GIVEN.

It is an American knife made by the Empire Knife Co., West Winsted, Conn. The blade is of the best English steel, hand forged, and the whole is beautifully finished. If it wouldn't make any boy turn summersaults on Christmas morning, I don't know what would. If your family is more girls than boys (like ours), you can have a beautiful, white-handled knife instead of it. Either of these knives will be sent in place of the "steam engine."

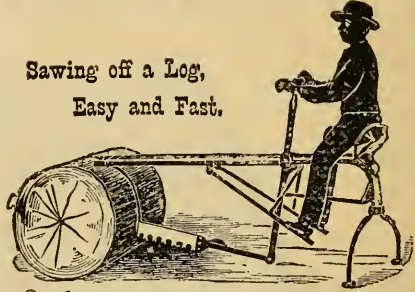
If you wish to buy any of the above articles, the first 11 will be 10c. each, post paid; the last 4, 15c. each post paid.

WANTED to exchange.—Thorough Bred Poultry for Novice Extractor, Comb Foundation, or anything necessary in the apiary. Correspondence solicited with enclosed stamp.

E. H. NICHOLS, Williamston, Mich.,
 Central Michigan Poultry Yard.

12

Sawing off a Log,
 Easy and Fast.



Our latest improved sawing machine cuts off a 2-foot log in 2 minutes. A **\$100 PRESENT** will be given to two men who can saw as much in the old way, as one man can with this machine. Circulars sent free. W. GILES, 741 W. Lake St., Chicago, Ill.

I SHALL continue to keep on hand, and offer at reasonable rates, a full variety of Bee-Keepers' Supplies; such as

Muth's All Metal Honey Extractors,
 Unapplying Knives,
 Wax Extractors, etc. Also
 Langstroth's Bee Hives, and any Parts thereof,
 1 & 2 lb. Square Glass Honey Jars, with
 Tin Foil Caps and Labels, [Corks,
 ½ lb. Glass Tumblers,
 Fruit Jars, etc.

Comb Foundation, Bee Vells, Gloves, Straw Mats, Alsike Clover, and a variety of Garden and Field Seeds, etc., etc. For further particulars, address

CHAS. F. MUTH,
 976 and 978 Central Ave.,
 Cincinnati, O.

com

WANTED.—By a farmer, aged 23 years, a situation with an experienced apiarist who is up with the times. Reference given and reference required.

12

F. MINNICH, Gratiot,
 Licking Co., Ohio.

HEADQUARTERS FOR WHITE LEGHORNS.



Stock first class. For sale, shipped in light coops, at \$3.00 per pair; \$4.00 per trio; 20 splendid breeding Cockerels at \$2.00 each. Eggs packed in light baskets, \$2.00 per 13. Postal cards promptly answered.

Address all orders to

JOHN W. THORNBURG,
 12 Winchester, Randolph Co., Ind.

READ,

Bee-Keeper's Magazine, 75 c.; A. B. Journal, \$1.25; Gardener's Monthly, \$.75; Scribner's Monthly, \$3.65; Rural Life, \$1.40; Fruit Recorder, 90 c., and a large number of other papers at reduced rates. Subscribe and save money.

12d

E. H. WYNKOOP, Catskill, N. Y.

GLEANINGS IN BEE CULTURE.

DEVOTED TO BEES AND HONEY, AND HOME INTERESTS.

Vol. VII.

DECEMBER 1, 1879.

No. 12.

A. I. ROOT,
Publisher and Proprietor,
Medina, O.

Published Monthly.

TERMS: \$1.00 Per Annum in Advance; 3 Copies for \$2.50; 5 for \$3.75; 10 or more, 60c. each. Single Number, 10c.

SCRAPS AND SKETCHES. NO. 12.

MY BEE-KEEPING TACTICS.

I HAVE often heard a bee-keeper compared to a general having an army under his command; and I think the comparison a good one, although it is getting to be a little old. I have known bee-keepers who, if they should manage an army of soldiers with as little skill as they do an army of "workers," would meet with greater loss on the battle-field than they do in the apiary. They do not seem to have any definite plan, and do not know whether to work for comb honey or for extracted,—to swarm their bees artificially, or to let the bees do their own swarming; they seem to "kind o' take things as they come," and let the bees manage things to suit themselves. Although we are dependent, to a certain extent, upon the season, I think it is better to have a definite object in view—changing our plan of operations, of course, if circumstances demand it. What that plan should be, every one must decide for himself. I will give you my plan for '78, not as a model, for what is a success with one might be a failure with another, but as an example.

In the spring, the swarms were kept as nearly equal as possible by giving the weak swarms frames of brood from the strong ones. When a colony showed a disposition to "hang out," it was given an upper story supplied with fdu. As fast as the combs in the upper story were filled with honey they were emptied with the extractor. This mode of "warfare" was continued until the basswood-honey harvest was almost over, when nearly all of the colonies were broken up into nuclei for queen rearing. Late in September, the nuclei were united and the extra hives sold to a man who wished to use them in preparing his bees for winter. Last spring, I made more hives to take the place of those sold.

Now that the "campaign" for '78 is over, and I can look back to see if I made any mistakes, I find that I made on y one wrong movement; that was in not beginning to rear queens earlier in the season. In most of seasons, my campaign would have been a brilliant one; but, in '78, the yield from basswood, in this locality, was—well, in my diary I find this expression: "Basswood didn't amount to 'shucks.'" Still, I do not feel the least bit like surrendering, as my profit from eight swarms was \$122.26; just about \$15.28 per colony.

Brother bee-keepers, be sure and plan your campaign before hostilities are commenced, and, in time

of action, never be found without plenty of supplies and accoutrements.

TWO LITTLE TWIN BEE-KEEPERS.

Novice, you have told us of your little "Blue Eyes," and now I must tell you of our little "Brown Eyes-es." The same day that brought the November No. of GLEANINGS, for '78, also brought us two little brown-eyed girls. Considering that these are all the "little folks" there are at our house, don't you think I have been—well, modest in not saying anything about them until they are more than a year old? They send greetings to "Blue Eyes" and the "new baby."

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

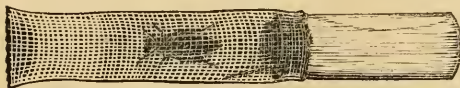
May God bless that little household, and especially the brown-eyed little girls! You have certainly been modest, friend H., to have given us all these homelike articles without saying one word all this time about the little "chicks." Blue Eyes returns the greetings, and I presume the new baby would if I could make her understand it, for her greetings threaten to raise the roof off the house almost every day.

OUR OWN APIARY.

INTRODUCING QUEENS IN COLD WEATHER.

NOV. 6th.—On the 3d, we received 31 more queens from Bianconcini, Bologna, Italy. All were alive but three, which we think pretty good, considering the cold frosty weather during transit. Friend B. puts in two, pretty good sized combs, and plenty of bees, and his queens compare favorably with any we have ever received. The weather was freezing cold when they were received, and stormy and windy besides. The problem was, how to introduce them. My plan was to cover the little hive with wire cloth, and invert it over the cluster; we could not let them out at once, for most of the hives had just been made queenless. My idea was that the cluster was sufficiently large to keep them warm, when the upper story was well packed with chaff cushions, and then the process would be something like uniting. The result was, that the bees, imported queens and all, were cold and stiff next morning. We brought them in and warmed them up, and no great harm was done, but it

was evident that this plan would not work in wintry weather. The trouble was that the bees in the hive drew down away from the cages, and chaff cushions having no warmth of their own are only a protection, when the cluster of bees is enough to give out warmth which they can confine. Will finally improvised a cage for introducing in cold weather, that answers the purpose nicely.



INTRODUCING CAGE FOR COLD WEATHER.

It is simply a piece of wire cloth, 3x4 inches, rolled lengthwise, so as to make a tube $\frac{1}{2}$ in. in diameter. An inch of one end of the tube is filled with soft candy, and a 2 dram vial, with the usual notch in the cork, is put in the other end. The queen is put into the cage, and it is then pressed between two combs, in such a way that the bottle is at the upper end. Of course, the cage is put right in the midst of the cluster, where the bees cannot help getting acquainted with her. So far, we have had no failures with it. We can furnish such cages, candy, bottle, and all, for 5c.

CHAFF HIVES VERSUS SIMPLICITIES.

As the past season has been generally a poor one, our neighbors, many of them, have been discouraged, and have come to me to have me buy their bees. I have already bought so many, that our apiary now numbers about 325 colonies. We have delayed uniting, on account of the last shipment of imported queens, and because there are always so many wanting a queen the very last thing. I do not know that I have ever before been able to supply all orders very late in the fall. Our last dollar queen was sent off yesterday, and now we have nothing but tested and hybrid queens, aside from the imported ones.

7th.—We have had a severe, freezing, wintry spell; but to-day it is so warm the bees are out again. In front of the Simplicity hives, almost without exception, we find handfuls of dead bees; but, at the entrances of the chaff hives, almost no dead bees. Worse than that, a good many of the Simplicity hives containing weak colonies or queen rearing nuclei have been balling their queens. This occurred mostly in hives where there were many dead bees found on the bottom board, and after looking at the matter carefully, I am convinced it was the imperfect protection that has got them thus dissatisfied and demoralized. Out of about 20 colonies in the Simplicity hives, six had balled their queens, and two imported queens were killed by the operation. Will it not pay to have even nuclei in chaff hives? I am convinced it will, and into chaff hives they shall go to-morrow.

NEIGHBOR RICE HAS JUST BEEN HERE, and he says he has only six or eight colonies in his house apiary, and that he will soon take his bees all out, for the simple reason that he does not like to work with bees in a

building. As his house apiary cost him quite a sum of money, this is a very important matter to those contemplating building such structures. As he extracts all his honey, it would perhaps make a difference if he worked his bees for comb honey. He uses it to set his hives in, in winter, and likes it very well for that purpose.

COVERING THE FRAMES—WHAT SHALL WE USE FOR THE PURPOSE?

Neighbor R. uses old carpets, and says he likes them better for the purpose than anything else—especially as they cost him nothing!

"But they do cost you something, friend R."

"Why, no; we always have carpets wearing out, and, after they are washed clean, they are much softer for the bees than a new carpet even. My wife hems them all round, and when they are just the right size they are warm, and no bees can get above them."

"But the bees bite holes through them after a while."

"Why, yes; they do in time, and some colonies will eat a carpet much faster than others; but, after they get too bad, we give them another."

"The bees will also cover them with propolis, in time, so that they kill bees unless you are very slow, and very careful in putting them down, will they not?"

"Yes; but we then give them a new one, as before. They last a good while, and I have got so used to carpets that I like them better than anything else."

Now, my friends, there is perhaps a good deal of truth in the above, and as I can not well manufacture soft old rag carpets, perhaps each one would better make them at home. Unfortunately, there are a good many bee-keepers who will go without a thing before they will make it themselves. For such, we will make sheets of burlap, and hem them all round, for 5 cents each. This, like the carpet, is good until some adventurous bee bites holes through it. The wooden mat, we have decided to try at the same price next season; but the tin-lined sheet of duck or enameled cloth, preferred by a great many, we can not furnish for less than 10 cents.

THE NEW GRAPE-SUGAR CANDY.

After severe cold weather, this has partially hardened in the cells, after all; but, as it is still as soft, or softer, than pollen, I do not apprehend any trouble from it. Some of the colonies that emptied one tray very quickly seem to be a good deal slower in emptying the second. I do not know whether it is because they have got tired of it, or whether it is because of the different weather. At any rate, it has caused the rearing of quite a lot of new brood, late in the fall.

Nov. 26.—"It never rains but it pours." Fiorini sent us 52 queens last month as I told you; Bianconcini sent us 32 shortly after, and last Saturday Tremontani sent us 20 more. Just think of it, an invoice of queens from Italy as late as the 22nd of Oct. Thanks to Will's new cage, they are all successfully

introduced, and we go into winter quarters with towards a hundred imported queens. As all three of these last lots were unexpected, it would seem that our friends in Italy must have confidence not only in my ability to care for so many, but in my disposition to pay for them. You see we can be prompt in filling orders next spring, if—if—well, we can fill orders promptly this winter, any way; and I will get them safely at your express offices any month in the year, if you will take care of them after they are there.

Our bees are now all in chaff hives, except a few having queens yet to be sold. We shall go into winter with about 225 colonies, 150 of which are in chaff hives and the rest in the house apiary.

R. MERRYBANKS TRIALS IN BEE CULTURE.

HOW HE SAVED MONEY.

YOU see, our friend, after some sad experience in sending his wax a great way off by express, and paying more money for express charges than the wax was worth, to say nothing of the express on the fdn. back again (he was obliged to do it all by express, because he had small quantities and was always in a hurry for it), finally decides to have a fdn. mill of his own. The money is scraped up, the mill purchased, directions carefully read over, all needful appliances—such as soap bark, starch, etc., procured, and now all that he lacks is a stove

OUR CARTOON FOR DECEMBER.



MR. MERRYBANKS MAKING HIS OWN COMB FOUNDATION.

on which to melt his wax, and a room for his tub of water, mill, etc. He finally decides to use his wife's cooking stove, but thinks it will make less trouble to do the work during her absence. As he does not know exactly how it may turn out, he decides to say nothing to her about it.

It seems his wife (as wives often do) returns rather unexpectedly, and the scene that meets her astonished gaze as she opens the door, our artist has tried to depict in the sketch above. Do not be frightened, my friends, it is not melted wax that the little one has fallen off the table into (our artist would never allow that, for he has a little boy and girl of his own), but only a tub of cold water. It is nothing strange that children of "inquiring minds" should wish to see every thing done, and, at our friend's house, it seems even the dog and cat are taking a "lively" interest in proceedings; but, if I am right, the dog seems a little undecided as to whether the splash before him was a *bona-fide* part of the programme, or a slight accidental hitch in the machinery. As I was

obliged to leave just when the above took place, I really cannot say how the husband and wife adjusted matters, nor how many pounds of fdn. friend M. made that day; but I hope and trust the day ended in tranquility.

Moral:—When you go to work with wax, candy, glue, honey, or anything of the sort, be careful. Accustom yourself, by practice, to handle any of these things without soiling your fingers, or getting a drop on the floor or any where else. If you cannot work without scattering things all about, do not try to do any such work, but hire some body to do it for you, and remain poor and helpless all your life. Don't you see how naturally scolding comes from me? Tell your wife, when any scolding is needed in the family just to send for me.

Our friend, A. C. Kendel, of the Cleveland Seed Store, wants some white clover, extracted honey. I hope some of you will send him some, for a man so prompt and trustworthy as he ought, to have everything he needs—to carry on his business.

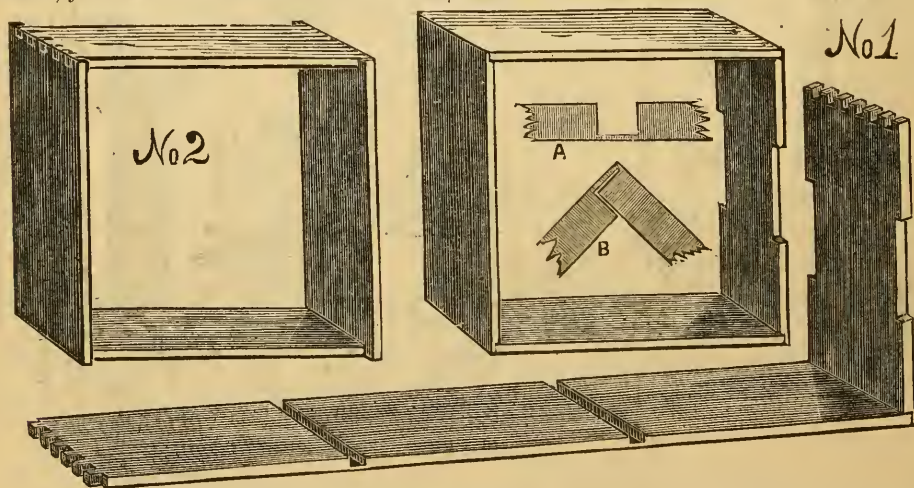
THE NEW SECTION-BOX ALL IN ONE PIECE.

A NEW AND VALUABLE INVENTION.

A FEW days ago, Mr. Gray brought me a piece of thin wood that he had by accident sawed nearly through, and, folding one piece at right angles across the saw cut (as shown in the cut below), asked me what I thought of his new folding joint for section-boxes. I thought at once it would make fun for the boys who have buzz saws, and so it has proved. The engraving our artist has given you will explain the matter almost of itself.

Get out of planed, 2 inch plank, blocks long enough to make the four sides of your sections. With a wide cutter-head or suitable tool, cut wide shallow grooves across the plank near the ends, where you wish the entrances for the bees to come. If you want a closed-top section, cut them across one end of the plank only. If you wish the box to go together with a dovetail joint, dovetail each end of the plank; but, if more convenient, you can omit this and nail them

with the wire nails. When your plank is ready, pieces ripped off should be exactly like the long strip I have shown in the cut, partly folded up. After ripping off, you are to cut most through where each corner comes, with a thick saw, such as we use for dovetailing. Saw a thin cut for slipping in the fdn., if you choose; but I believe the latest and quickest way is to put in the fdn. with rosin and wax, as given in our catalogue. Almost no machinery is required where the one corner is nailed, and we have a strong section that can be put together quicker than you can think. For making the crosscuts rapidly, you want a long arbor with three small thick saws on it, held at the right distances with suitable sleeves. Mr. Gray and Mr. Washburn are now at work at an automatic machine that is to pick up the pieces, saw the grooves, count them, and put them in boxes, all of its "ownself." Next month I will try to give you a picture of it. The sections made by it will be at the same prices as the old style. If you wish, I will send you one by mail as sample, for 5c. You will see that the invention can be applied to a vast number of other purposes.



GRAY'S NEW SECTION BOX, MADE ALL OF ONE PIECE OF WOOD.

DEPOSITORY OF

Blasted Hopes,

Or Letters from Those Who Have Made Bee Culture a Failure.

I AM disgusted with bee-culture. After some expense and considerable labor I have made a complete failure. Send me one more copy of GLEANINGS: it may be that I will get into the notion to "try, try again."

G. S. HENDERSON.

Soltillo, Miss., Oct. 27, 1879.

Perhaps you would like to hear from this locality in regard to bee keeping. I have met with nearly all the principal bee keepers within 20 miles of me, representing nearly 2000 colonies of bees, mostly black or common bees, and the universal cry is, we have no surplus honey this season. Many of the young swarms have not gathered supplies sufficient to carry them through the winter. Last season my bees averaged over 100 lbs. of honey each, largely extracted; and I sold at 12 to 14c per lb. Last winter, the loss of bees in this locality was great, 2/3 of

all the bees through the country died, except those of the most practical bee keepers, who lost from 1-5 to 2/3 of their colonies. I lost 12 out of 69. I go into winter quarters with 90 colonies, all in fair condition.

H. S. HALKMAN.

Peru, Ill., Oct. 25, 1879.

Thanks, friend H. such reports remind us that if we do get 100 lb. of honey per colony one year, we must not base our calculations on doing the same every year. It occurs to me, you may not belong in this department, but your letter comes the nearest of any I come across.

This has been a very dry season. Two-thirds of the bees here will die if not fed this winter. There was no fruit tree bloom and therefore no brood reared until white clover and basswood, the bees having become weak in the time. I have 56 colonies and not a pound of surplus.

W. C. SMITH.

Warsaw, Mo., Sept. 26, 1879.

TRIALS OF A BEGINNER.

It seems from Nov. GLEANINGS, that this season has been rather trying to bee men, especially in this region, and I have my share. More than one-

half the bees here died last winter, and many more will die this winter. We have had the poorest season this country ever knew.

BUYING 22 COLONIES TO START WITH.

Last spring I bought 22 colonies of bees, of Hardin Hains, of Vermont, Ill., which he claimed in his circular and advertisement to be pure Italians, and I sent him his price for such, but he sent me blacks and hybrids. I worked all summer with them, got 200 lb. of honey, bought 8 queens, tried to Italianize them, went into winter with 42 colonies, and came out with 37. It was a very poor season's work. Then I read in GLEANINGS how much others got, and it made me a little sick; I thought, however, I would make it up this year, but worse and worse! I have fed my bees nearly all summer. Some have gone, some died, and, after uniting the weak ones this fall, I have 21 left with little to winter on, and not a taste of honey for us.

BUYING 4 QUEENS TO START WITH.

The 5th of last June, I sent friend H. Alley \$5.00 for queens, 1 test-d, and 3 "dollar" queens, but he forgot to send them until some time in August.

QUEENS BY MAIL.

Then he sent 3 by mail, in an envelop, and two died; so I got one and that is a hybrid. I notified him of the fact, and he sent me a card asking if he should send me more queens. I told him yes, or the money, but have not heard from him since.

SENDING \$5.15 IN A LETTER.

Then I sent you \$5.15 for goods, and that chap that I suppose you have looking through the iron bars stole it. You made it all right on the goods, but the money was lost.

SORREL SEED IN ALSIKE CLOVER.

Then that clover seed you sent me last fall had lots of sorrel seed mixed with it, so I have nearly as much sorrel as clover, but the bees don't like it half as well. Probably you are not to blame for that, for you probably bought the seed, but look our next time and not buy of sorrel men. So you see bee-keeping has been rather expensive and a little discouraging; but I wish to make one trial more with your discovery; that is the

GRAPE SUGAR CANDY FOR WINTERING.

You say bees will winter on it; so I will send you an order for some, as you recommend it in Oct. and Nov. GLEANINGS, and try the bee one year more, and if no better, then I sell out an goes mit the West." Not "Blasted!" nor bursted hopes yet.

Sumner, Ill., Nov. 11, 1879.

W. EMERICK.

Truly, my friend, it seems you have reason to feel discouraged, if any one has. If you will excuse me, I should say your first mistake was in buying 22 colonies to start with. If you will look back over GLEANINGS, you will see those that have commenced with one or two colonies have done the best, and they seem to enjoy it more, too. I can well remember when most of our most successful honey raisers commenced with a very few stocks, and worked out the problem and tested their abilities, with those few. Those who "are faithful with few," very soon become "rulers over many," and that, too, without purchasing. I think you made a mistake again, in sending for 4 queens. One, or two at farthest, would have been better. Again; had you read the journals faithfully, you must have known that our friend Alley has almost always been noted for being behind hand in filling his orders, and it was therefore unwise to send to him for things you wanted at once. If this is hard for Mr. Alley, it is kind to beginners like yourself, friend E. Whoever has things to sell must build up a reputation for promptness, or suffer the consequences. Once more, \$5.00 in an unregistered letter was rather careless, my friend. In regard to the Alsike; if it contained an oz. of sorrel seed in a bushel, I

will return you the money you paid for it. It does not make any difference whether I bought it or raised it, it is my business to have it free from other seeds. You will see from back volumes, that this charge has been made before, but it was shown that the sorrel seed was in the ground. Alsike seed is always of different colors, which leads many to think the dark red seeds are sorrel. Count out a dozen sorrel seeds and plant them in a pot. Read what is said to Anna L. Gray, on page 487. Now, friend E., take the best care of your bees you know how, but stop paying out your money for them. It won't hurt you, and some of the rest of the A B C class, if you practice, for at least one year, "being stingy" so far as the bees are concerned. I like to sell goods, and I am very much obliged to you for the order you have just sent, but when I hear of one's having such bad luck as you have had, it worries me for fear I am giving you, unconsciously, bad advice. Above all things, I want the A B C class to make a sure thing of their bees, even in bad seasons; to be prompt, and able to pay their debts at any moment. If bee culture will not help them to do this, I much prefer they should give it up, and never send me another copper. Here is another friend in the "same boat;" listen to him.

My bees have done poorly during the last two years. I have lost \$400 worth. Cause, commencing too heavily in that branch of business. Please send those feeders by return mail and directions if needed. Hesperia, Mich., Nov. 19, '79. D. C. LANPHERE.

The "Smilery."

This department was suggested by one of the clerks, as an opposition to the "Growlery." I think I shall venture to give names in full here.

GOOD REPORT FROM CHAFF HIVES.

THE season has been a very dry one. White clover, our main honey plant, was almost a failure, hence our honey season was a very short one, not more than two weeks; but it was astonishing what strong colonies gathered in so short a time. I have a few colonies which stored me 100 lb. in surplus combs. I took 60 lb. of section honey from a neighbor's colony which I transferred early in the spring. A few others report double Simplified hives full. This I consider good for the season. Those colonies in chaff hives did far the best. I now have all of my bees in chaff hives. I consider them far superior to any hive that I have ever used. You don't know how comforting it is to me, when I pass my bees these frosty mornings, to know they are all snugly packed away in chaff, and will need no more attention until early spring, when I shall commence stimulating. By the way, your imported queen has been filling sheets of comb with eggs this fall. I think she means business in the spring. I presume I shall astonish some of your readers at the amount of beautiful dollar queens I will send out next season. You may put my name in the dollar list. I shall endeavor to give satisfaction in every respect. Many, many thanks, for the world of pleasure you have opened up through your publications. May the God of wisdom continue to lead you.

F. J. WARDELL.

Uhrichsville, O., Nov. 10, 1879.

Really, friend W., you make one feel that it is a most pleasant task to edit a bee journal. I think I will turn over to the "Growlery" and read a page or two, lest I get proud and puffed up.

INTRODUCING OUR HONEY INTO ENGLAND, AND THE PREJUDICE AGAINST THE YANKEES.

GRAPE SUGAR, ETC.

THE following I found on a torn scrap of paper.

VICTORIA'S HONEY.

It is a curious commercial fact that, whereas, a year ago, no American honey in comb was exported to England, not less than a million pounds will be sent during the next twelve months. The trouble was, honey could not be strained and canned, for the reason that it would candy. American honey is by far the best honey in the world, as regards flavor and purity of appearance. Knowing this, a New York firm hired Mr. Hoge, a well-known honey expert, to introduce it in England. Over the water went Hoge, with a big lot of the sweet stuff in the comb. It required skill to pack and unload it, but it arrived all right, not a cell being burst. The English dealers in honey gave him the cold shoulder. They had the editors of the "British Bee Journal" give him a raking down, and they themselves added all the mean things they could say.

Mr. Hoge made little headway. He was about to give it up as a bad job when a brilliant thought struck him. He must get the honey on the Queen's table. How was he to do this? While picking his teeth after dinner and ruminating upon the subject, his eye lighted on the pickle-jar. It bore the name of a man who had been high steward at Windsor Castle. "He's my man," said Mr. Hoge to himself, and away he went for the pickle man. Did he rush up to him and blurt out, "I want to put my honey on Victoria's table"? Not a bit of it. He began to talk pickles with the man - asked a thousand questions about how they were made, ate a score or more of them, and ended by proposing that the pickle man furnish pickles to the American house he represented.

The pickle man was delighted. The New York man gave him an order. They had a bottle of wine together, and then the American said: "Now I have helped you, you must help me. Can't you put American honey on the Queen's table?" "Of course I can," was the reply; and in no time the arrangements were made. A case of honey was given to the pickle man, and another was sent to the high steward, and in a short time some of it was before the royal family. The young folks liked it so well that Victoria gave orders that it be kept in the castle.

That was enough. American honey was from that moment in demand. Mr. Hoge has just sent orders for the shipment of 500,000 pounds of this year's crop. The "British Bee Journal" flopped over to the other side, and was loud in praising the American article. Every fashionable person's table must have American honey.—*Cincinnati Enquirer*.

But it seems the "British Bee Journal" is not quite satisfied yet, or else they were convinced against their will, and have gone back again, as the following from their November number seems to indicate:

YANKEE HONEY.

The ingenious descendants of the manufacturers of wooden nutmegs are forcing, by all the means they can command, the sale of their honey (?) in this land of ours, and as an advertisement they have published a woodcut showing the back of a bald head, beneath which are the words 'Utilised at last! Wanted twenty bald-headed men willing to have their heads painted, and march through the streets as perambulating signs.' On the bald part of the head the words (painted) are (in dreadful zigzag), 'Thnrber's New Styles of Honey!' and on the collar, 'Ask your wife to buy it' (sic).

'But,' said a trustful lady friend, 'why could not the forehead be made the advertising medium, and the poor men be allowed to wear their hats?'

'Why,' said one who had had experience, 'they who vaunt the rubbish are afraid to look one in the

face, or let it be known until after they have passed that they have aught to do with it.'

'But,' said speaker No. 1, 'how do they manage as regards followers?'

'That is easy,' says No. 2; '*they let them follow*.' The secret being, that those 'utilised' are chosen for their celerity in avoiding followers.—*EXPERIENTIA DOCET, Lower Norwood*.

While I cannot exactly approve of Thurber's taste in his ways of advertising, I feel pained to see such expressions from our friends across the water. Thurber does more than, perhaps, any other house in the world, to encourage the industries of different nations of the earth, by both buying and selling the products of different nations. If his goods are satisfactory (even to the Queen and her household), and his ways successful in calling customers, shall we not have charity for his ways of advertising, though they are not according to our ideas of dignity? If Thurber's goods are not as represented, and he fails to attend to complaints, give us the facts, and we will give the people warning. Although I feel very much tried with Mr. Hoge, because he will not pay up his little debts here at home, I feel we owe him a vote of thanks for his energy and zeal in disposing of so much of our American honey, in foreign parts. The cry of adulterated comb honey, like that of adulterated sugar, I believe, has been fairly shown to have been a fraud and a sensational scare. Grape sugar, so bitterly persecuted and misrepresented, has now taken its place among the legitimate products of our Indian corn, and its manufacture has become a great industry, benefitting many classes of people.

SENDING QUEENS TO WASHINGTON TERRITORY, ETC.

I RECEIVED the package of six queens, Sept. 8th, at 10 o'clock P.M. You shipped the 18th of August, which makes 21 days of rail and steamboat travel. I will now give you the condition of each package as I opened it.

The first package was the section-box with honey. The queen and one bee were alive. The honey was all gone on one side; an inch and a half square of capped honey on the other side had the wire cloth pressed into it so that the bees would have to cut the comb to get it. Neither queen nor bee was able to fly.

The next package was the section-box with candy, and water-bottle. Only six bees were dead. The queen and bees were able to fly to the window, and were as bright and clean as though they had been but an hour from the hive.

The third package was a large comb cage. *All were dead!* The honey was all gone, and five or six white worms, about half an inch long, with brown heads, were in the box. I suppose they were moth worms. I never saw one before, as we have none here.

In the fourth package, the queen and about half the bees were alive, but so swollen up with the dysentery that I thought they were all queens. They were just able to crawl on the table; but, after emptying themselves, they became quite smart. The queen seemed all right. About half the honey was left.

From the fifth, also a frame cage, the bees came tumbling out with a whizz, queen and all, and flew to the window. About ten cells of honey were left, and the honey not candied. Both queen and bees were looking as black as though daubed with honey.

In the sixth package, a frame box, all were dead but the queen. She was able to fly to the window. About one-third of the honey was gone, and the rest was candied in the comb.

Now, Mr. Root, the bottle cage is *king*. About half of the candy was gone, and but a teaspoonful of water left in the bottle.

I introduced them all according to instructions in A B C, and to-day I opened the hives and found all of the queens all right. All but one were laying.

HOW TO FIND BLACK QUEENS.

Now I should like to tell you how I found the black queens. I tried according to instruction in A B C; that is, I lifted the frames out without smoke, set them in the comb-basket, and looked them over again when I returned them, but it was "no go"; I could not find her. I waited half an hour, and tried again with no better success. The weather was cool, and the bees all in the hive. I began to think I should have to give it up, or try Quinby's plan of *sifting*. At this stage of affairs, my wife came to the rescue. We laid some boards, about four feet long, from the alighting-board to the ground, and, on the boards, spread a table-cloth. Now we took the frames, one at a time, and shook the bees on the cloth, and with the smoker drove them up the cloth to the hive. After looking them all over, we shook what was left into the hive, and then took the next frame. On the third shake, we found her ladyship marching up the cloth with her children, and had no trouble in securing her with a dozen young bees, and put her in a Root candy-cage for safe keeping. In that way we found five queens in less than an hour, and had our Italians in the hive.

The bees, by the time we were through, had become so demoralized that they seemed to think the Italian queens always belonged there. They showed no disposition to cluster over the cage, and only one hive formed queen cells. I never saw the above plan in print, but it's the only *sure* way that I know of to find a *black* queen. In one hive, we failed to find the queen, after shaking all of the frames. We then took the section-boxes, smoked and shook them, and there found her.

H. A. MARCH.

Hidalgo, Whatcom Co., Wash. Ter., Sept. 15, 1879.

I always rejoice at an order from a great distance, for it enables me to try my skill. The six queens spoken of above were put up in three different ways. As Miss Andrews' cage, shown on page 209, had never failed, we allowed her to put up 4 of them; the fifth, I put up in the section cage shown on page 210; the last was in a section cage, with no honey, but with a large bottle of water, and a large cake of candy. Perhaps 200 bees were put in this.

QUEENS FROM THE EGG, AGAIN.

MR. EDITOR:—In your remarks under our article headed "Queens from the Egg *versus* Queens from Worker Larvæ" (page 436), you look for experience to prove the position there taken. This we had intended to give, but, finding it so lengthy, decided to leave it for another article, to fall back upon, you know.

In the first place, we wish to be "classed" as an A B C scholar of 22, wishing rather to learn than to teach, giving our humble opinion upon this question, backed by a few facts and observations, that it may pass for what it is worth. We began bee-keeping on the improved system seven years ago, and have practiced artificial swarming, etc., ever since. Our bees, until the present season, in spite of our system, have suffered much more from winter malady, spring dwindling, and swarming out, than those of our neighbors who have kept 100 or 200 on the old plan. Many of ours have also balled and killed their own queens, while we have never known their bees with natural queens (with which we have worked somewhat) to do so. We have also found their queens more uniformly large and prolific.

Five or six years ago a neighbor got six or eight queens of Mrs. Tupper, and began raising (artificially) queens and bees for sale, and sold many in the neighborhood. About seventy-five per cent of those sold died the first winter, and the remainder are considered no better than the natives.

Last summer, we purchased eight swarms of him. One queen was dead the next morning, three turned "drone-layers" before spring, and three out of the other four were superseded. For the past two seasons, he has allowed them to swarm naturally, and this summer they have done much better than before, while others have not done so well.

This spring, the only black queen we had among 22 was also the only natural one, and the *best* one. In your remarks, you say: "We often raise queen cells by giving a queenless stock nothing but newly laid eggs to build them over." *Exactly so, and that is what we call "queens from the egg."* If we had seen no better way, we should not have objected to the old plan. This summer, in Italianizing our own apiary of 50 colonies and some for our neighbors, we had the cells built upon strips of comb from which all larvæ were destroyed, leaving only *eggs*. As the queens were removed the day before, the bees were all ready to begin. The result is, we have the finest lot of queens and the *best* lot of bees that we have ever had. Instead of hatching in eight or ten days, it took these queens from *fifteen to seventeen* days to hatch! A waste of time, eh? But give us one such, rather than a half-dozen of the former.

Let natural queens be raised from as *carefully selected stock* as the forced ones, and then see if there is not a "difference." But, has not Quinby's statement been contradicted by "actual practice," to some extent? What American apiarian with his forced queens (we mean queens from partially developed worker larvæ), has been able, for the past seven years, to bring forward an annual report like that of friend Doolittle, with his natural swarms? You think the secret of his success lies not in his hive or in his locality, but in the *man*. Yes, it is the *man* who complies most perfectly with nature's requirements, who will succeed best, we think. If "queens from larvæ that are nearly ready to seal are one-half workers," and worthless, how about these from larvæ one-half or one-fourth ready to seal? I think we will agree on all points, but should we not follow nature as *nearly as possible*? Pardon us for speaking thus boldly. It is our object to bring out the truth of the subject, and then accept it, even though it is contrary to our theories.

OLIVER FOSTER.

Mt. Vernon, Linn Co., Ia., Nov. 8, 1879.

All right, friend F. I have no objections at all to queens from the egg; in fact, the greater part of ours have been so reared. In grafting, we have been obliged to get larvae that have just broken the cell, but perhaps we shall succeed just as well in grafting eggs; who knows? I know very well, bees will winter better where surplus honey is stored in boxes and natural swarming is practiced, for I have tried both; but, my friend, is it not because the combs are well filled with honey, all around the brood nest, just as they need it naturally, and in a much different shape, from those where a novice has divided and subdivided all summer? Does Doolittle increase entirely by natural swarming? Will friend D. please stand up and say? If I am correct, he reduces his number greatly, both in spring and fall, and you may be sure he keeps the best queens, and destroys the others.

Well, I declare! Friend D. obeys a summons pretty quickly. The following postal was just handed me, and although it does not quite tell what we wanted, it verifies my last remark.

Friend R.:—I have just been reading on page 431, November GLEANINGS; please book me for a queen from the queen told of as producing the honey gatherers, next season, if—if she don't die in wintering. G. M. DOOLITTLE.

Borodino, N. Y., Nov. 15, 1879.

Before your remarks, friend F., I had thought seriously of having an apiary next season devoted to rearing queens from imported mothers by natural swarming. How much more will the friends give for such queens? I have several times wondered if it might not stop the balling, swarming out, spring dwindling, etc.; but the farmers all over the land, with their box hives, have about as bad dwindling as any class I know of. They, neither in bees nor honey, come anywhere near the educated, modern bee men of our day. I shall hardly expect the A B C class to escape spring dwindling as well as do the old bee-keepers; but do not "wisdom's ways" admonish us to glean from both and from all systems?

BEE BOTANY AND ENTOMOLOGY.

A RELATION OF THE SIMPSON HONEY PLANT.

ENCLOSED, please find a sample of a honey plant. I counted as many as 87 flower stems on one stalk. It commences to blossom in July, and remains in bloom about 2½ months. Bees work on it late and early, wet and dry. If you know any name for it, I should like to hear from you, and to learn if it is worth anything for honey.

Buchanan, Mich., Sept. 26, '79. WM. BLAKE.

Prof. Beal replies as follows:—

It is the top (a very poor specimen) of *Lophanthus scrophularifolius*. It is a sort of giant hyssop, of which there are several in this country. They are tall herbs belonging to the mint family. Bees are fond of all mints, in which they can reach the honey.

The word *scrophularifolius* seems to indicate that it is a relative of the Simpson honey plant (*Nodosa scrophularia*), does it not? I should be very glad indeed to see even a distant relative; will you not send me some seed, friend Blake?

ASTERS.

I herein send you a twig of a bush that is quite a honey producing plant, just coming into bloom. I

would like to know its true name, if you will please answer by card or in GLEANINGS.

Hamersville, O., Sept. 11, '79. J. L. SHINKLE.

This is a small aster (probably *A. miser*), of which there are many species, all good for bees. The specimen is imperfect. W. J. BEAL.

Mich. Ag. College, Lansing.

Enclosed, you will find a branch of a plant that grows on low lands. The frost has not hurt it yet, while all other vegetation has been hurt. The bees are busily working on it. C. L. GAGE.

St. Johns, Mich., Oct. 6, 1879.

The above is a poor specimen of some kind of aster. These are very common in autumn, and all good. There are many kinds. PROF. W. J. BEAL.

Bees cover this plant; what is it?

Oxford, Penn., Oct. 6, 1879. S. W. MORRISON.

Prof. Beal replies,—

This is another aster,—a poor specimen with no leaves.

ACTINOMERIS SQUARROSA.

Enclosed, I send you a good honey plant. Please tell me the name of it. It is very dry and hot here now, and scarcely anything else yields honey. Buckwheat is drying up, but the bees are on this plant from morn till eve. It grows from 5 to 8 ft. high, in the timber lands along the creeks, and has now been in bloom about a week. I send you some seed pods, and flowers in full bloom, some buds and a full grown leaf. M. M. STOVER.

Table Rock, Neb., Sept. 1, 1879.

Answer by Prof. W. J. Beal:—

This is *Actinomeris squarrosa*, a tall perennial, somewhat resembling *coreopsis* and *helianthus*. These are all good for bees wherever found, and there are many kinds.

Enclosed, please find a plant of which bees are quite fond. I have inquired of several persons for a name for it, but no one can tell. The stalk and leaves resemble smartweed. There are acres of it in this section, and when the weather is fine, the bees are very busy upon it. It grows from one to four feet high, on low wet land. Do bees get honey from it? Please reply through GLEANINGS.

Fielding, Ill., Sept. 12, 1879. JOSEPH MASON.

It is of the family Polygonaceæ (Buckwheat); the genus, I think, is the same as smartweed, *Polygonum*; the common name is blackheart.

WILLIAMS' HONEY PLANT.

Prof. Cook:—I send you by to-day's mail a sample of a weed which we call the "Honey Plant." It grows on all kinds of soil, and on no soil at all. I have all kinds of ground from a rock quarry to the richest bottom land, and it grows well on it all. The sample I send you grew on dry and fine rock which was thrown out of the rock quarry 10 feet below the surface. The stalk was 6 ft. high. It commences to bloom the first of July, and blooms till hard freezing. We have had 3 light frosts already, an uncommon occurrence for this climate.

This is a species of *Compositæ*, near to bone-set. Mich. Ag. Col., Lansing. PROF. A. J. COOK.

SYMPHORICARPUS AGAIN.

The bush with the red berries grows every where about here. It grows in stools like the gooseberry bush, and about the same size. It has a cluster of blossoms under every leaf, which begin to open in May, and the last ones are now just gone. Bees work on this and the plant mentioned above from morning till night. We call this buck bush. Please send the name and description to GLEANINGS.

Fort Scott, Kan., Sept. 16, '79. F. B. WILLIAMS.

This is *Symphoricarpus vulgaris*. A. J. COOK.

SEVERAL HONEY PLANTS, ETC.

Please name enclosed plants. Bees have been working on Nos. 1, 2, and 8, about a week. They grow along fences and in uncultivated places. Nos. 3, 4, 5, 6, and 7 grow on low land and meadows. Bees work on them during August and the first of September. No. 9 is very valuable, for it keeps our bees busy between basswood and buckwheat bloom. No. 10 grows in great quantities on sand bluffs, where nothing else will grow. Bees have been working on it about 6 weeks.

AN ASTONISHING DAILY YIELD FROM WISCONSIN.

This has been a good season for bees, since the middle of April. Basswood bloom only lasted 11 days, but bees gathered honey very fast from it. One of my best Italian colonies, placed on scales, gained in weight 18lb., the 12th of July, and 17½lb. the 15th. This colony had not been helped in any way. Several others gained nearly as much.

Eau-gale, Wis., Sept. 8, '79.

FRANK MCNAY.

We sent the specimens to Prof. Beal, who said they were too incomplete to analyze. One of our girls who is studying "bee botany," then took them and reports as follows:

Nos. 1, 2, and 6 are species of Golden Rod. No. 8 belongs to the same family as the above, the Compositae, but is of a different genus, the Aster. No. 7, which has been mentioned quite frequently by bee men lately, belongs to the mint family, and is called *Melissa officinalis*, or bee-balm. Other specimens are too incomplete for analysis.

Just think of it, boys and girls! 18lb. in a day, from one colony! If this result is due to these honey plants, we would better all have some, unless we do a still better thing, and move up to friend McNay's neighborhood. Say, friend M., does it "do so always" (every summer), up where you live?

LIPPIA NODIFLORA, AOAIN.

I will send you a few seeds of the honey plant that Prof. Beal calls *Lippia nodiflora* (see page 346, Sept. No.), which is in full bloom now, and has been since about the first of May. It is our main dependence for honey, especially in a dry year like this, for it blossoms 7 months or over, and my bees have done very well on that alone, or nearly so. The honey is equal to the best white-clover honey. I have 180 swarms, and there are about 500 more within a mile or so of me. I would like you to plant the seed, and report the result next season. The plant lives from year to year in the ground, and also comes from the seed. You won't want more than about one plant to every square yard, for it runs and spreads rapidly, and stands dry weather well. The blossom resembles the white clover, especially at a little distance. If any of your readers wish to try it, I will send them some of the seed at about the cost of gathering and postage.

O. E. COON.

Many thanks, friend C. I would suggest that we make 5c. a uniform price for samples of seeds. If they are plenty, a good lot can be sent, and, if scarce, only a few.

BITTER HONEY; WHERE DOES IT COME FROM?

I send specimen, from which bees make bitter honey—in some years, thousands of pounds; in others, scarcely any. They get pollen from it every year.

C. R. CARLIN.

Shreveport, La. Oct. 17, 1879.

Prof. Beal replies:

This is *Helium tenuifolium*. There are ten species of *Helicium* east of the Mississippi pl. One of the species is common in Michigan and south, and is sometimes called "sneeze-weed" (*Helium autumnale*). The latter plant has quite often been sent in, as a good bee-plant. I see no reason why one should make very bitter honey and the other not. Sneezeweed is usually in rather limited quantities, and perhaps apiarists are not certain about the quality of honey this makes.

SIDA SPINOSA.

Find inclosed a bunch of flowers that bees are working on all day, from morn till evening, when it is warm enough for them to fly. It ought to be a good honey plant, as it is not a beautiful plant, by any means, and without a doubt is good for something. It is about one foot high. Please tell me the name.

S. H. LANE.

Whitestown, Ind., Oct. 14, 1879.

Answer by Prof. W. J. Beal:—

The plant is *Sida spinosa*. It is a weed common in the South, and was introduced from tropical America or Africa. It belongs to the mallow family.

SYMPHORICARPUS VULGARIS.

After seeing the statement of W. C. Smith, of Warsaw, Mo., in GLEANINGS, No. 11, Volume 7, concerning *Symphoricarpus vulgaris*, I wish to say to the readers of GLEANINGS in BEE CULTURE, that I will deliver on board the cars at Reed's, Mo., in good condition, plants at the following rates, and will warrant them to be good and healthy:—Per 100, \$1.25; 200, \$2.50; 500, \$5.50; 1,000, \$10.25; 2,000, \$19.00. And where ten dollars' worth are taken at one time, I will take one-half their value in Italian queens, at prices in GLEANINGS. I have my bees packed in wheat chaff, as per GLEANINGS, which is the "man" of my counsel.

NORRIS C. HOOD.

Reed's, Jasper Co., Mo., Nov. 20, 1879.

The above is pretty near advertising in our reading columns, but as it is unlikely that any one will care to invest largely just yet, and the price is also extremely low, we let it pass. Besides, it is from an A B C scholar, and we always rather expect youth and inexperience from them.

I this day send you, by mail, 5 specimens of our flora, which I would like to have you name (common name), as the flowers are all new to me, and I can't tell whether your magazine speaks of them or not. I also send, in a little box, specimens of insects, which appear in buckwheat and other flowers, and must rob our bees, as they come in millions.

M. H. PORTER.

Western Park, Elk Co., Kan., Sept. 26, 1879.

Answer by Prof. W. J. Beal:—

Number 2 is *Helianthus giganteus*. There is no definite common name, except large wild sunflower, and several plants are entitled to the same common name. In the Eastern part of the United States are 25 or 30 species, all good for bees, and all found in abundance in certain places, some in one place and some in another.

Number 4 is *Solidago rigida*, one of the golden rods. This looks so unlike many of the golden rods, that none but an expert would know it. Every bee-man knows, by this time, that golden rods and asters are all desirable.

Number 5 is *Salvia longipes* a sort of wild sage. Sages, like all other mints, are favorites of bees.

REMARKS ON BEE BOTANY.

Plants are coming in every few days from various parts of the country. There are some repetitions. New species are also among them; I mean specimens unlike any before sent. Those who read the journals must begin to realize that the species good for bees are not a few, but exist in many hundreds of species. These cannot (many of them) be learned by any except botanists. If a set were named and placed before any other person, he could not be trusted to compare other plants with them for identification. This the writer has seen exemplified in the case of many sorts of plants, for twenty years past. The same is true of insects, or other small animals.

W. J. BEAL.

Mich. Ag. Col., Lansing.

THE November number of the *American Bee Journal* contains a very full report of the convention at Chicago. Among the valuable papers read was one from Prof. Cook in regard to the bee's tongue, illustrated with diagrams.

WE clip the following good advice from the *Cincinnati Grange Bulletin*:

Scrape up all your beeswax on rainy days, but do not send it off by mail or express and lose half in charges; if you cannot sell it near home, club with your neighbors and send a barrel of it by freight.

MR. JAMES BOSTON of Cincinnati, Neb., has a tement hive with the roof in two pieces, each piece hinged so as to be raised like the lid to a chest. The connection with the ridge board, where the hinges are, is made water-proof by a strip of enameled cloth.

Box Hive Department.

HOW TO WINTER BEES IN BOX HIVES.

PLEASE accept thanks for the fine A B C book which I received of you. It is just a splendid bee-book. It is all any person needs to make a successful apiarian. But, friend R., could you not give us a little sketch now and then as to the best method of handling bees in the old box-hive—especially about putting them up for winter? It would, I think, interest a great many readers of GLEANINGS to hear a little more of the best management of the box-hive. There are plenty of bee-men who won't use any other hive. I am going into winter quarters with 15 box-hives that I expect to transfer, in the spring, into the Langst oth frames, and would like to know the best way to put them up for winter. You say, packing straw around them is no protection at all; and about ventilation, how much on the top and how much for the bottom? Now, if you think it worth while to give us a sketch on the subject, all right; if not, it will be all right any way.

A. H. DUFF.

Flat Ridge, O., Nov., 1879.

Why, my friend, I have been trying, almost ever since GLEANINGS started, to keep up a box-hive department; but as the box-hive men seldom take a bee journal, it starves out for want of material for it. My experience in wintering in box-hives last winter was so poor, I do not know but that you will regard me as poor authority. I had 15 or 20 that I had bought up, or taken for subscriptions, and, as they were full of honey, I thought I would let them winter in the good old way. Now, these stocks came from all over the country, from widely different localities; their stores, too, were of honey as nicely capped, and as thick and nice, as any one could ask for; but almost every colony died, and what didn't die had the spring dwindling in the most approved form. After we transferred, in April, the few that were left, they were so disheartened and demoralized they would hardly go out after pollen, when other colonies in chaff hives were just roaring with business. In the fall, we put chaff cushions over the holes in the top, and covered them with a box, but that seemed to do but little good. With a winter such as we had last, I can not but feel that box-hives are rather precarious property—especially where they are very large and roomy. If the hive is small, so that the bees come pretty nearly up to the walls all around, I should set them in a large box, and pack chaff all around them, bridging the entrance, so they could fly when the weather permitted. This arrangement, with a good roof over all, would come very near the chaff hive. If the box-hive is not small, I would saw off the bottom, or cut down its dimensions in some way, until the bees could pretty nearly fill it, and allow the chaff to come up near enough to be some protection.

WINTERING BOX-HIVE COLONIES IN A CELLAR.

Should the winter prove a severe one, it will, without doubt, be a great saving to carry them in, providing you have a dark, dry, frost-proof cellar. Should it, on the contrary, prove an open winter, and your cellar is not proof against warm days as well as frost, your bees will get uneasy, come out of their hives, and often prove more troublesome

and do worse than if you left them on their summer stands. You see, it is like this: Should you try half in doors and the other half out, one winter they will do best one way, and the next the opposite way. From this you will see why I advise beginners to winter bees out of doors, in this latitude. A great many times, bees in box-hives come through the winter strong, without any protection; but, of late years, this is rather the exception than the rule. You will constantly meet such cases, and they are often quoted to show that bees do best when let alone. Sometimes considerable apiaries winter well without care, but, taking the country through, this is very far from proving the rule.

VENTILATING BOX-HIVES IN WINTER.

If there are no holes in the top of the hive or cracks where the breath of the bees can escape, I should have some, by all means; but, instead of leaving them open for a draft of air to pass through the hive, I would cover them with a box of loose chaff, or a thick chaff cushion. If you can pry the whole top of the hive off, it will be much better for winter, as well as for box honey next summer. Spread over the exposed combs a piece of old bagging or burlap, and put over this a box to hold 6 inches or more of chaff, and then a rain-proof cover that can not be blown off by the winds. Close the bottom up as tight as you can, leaving only an entrance large enough to let out two or three bees at a time, and then, when a day comes that bees fly, see that none of these entrances are clogged with dead bees. If I were going to carry the hives into the cellar, I would pack them about in the same way I would to leave them on their summer stands. Chaff packing, in connection with cellar wintering, has given some of the best results that have been reported. This is for all kinds of hives. When you set them out, they do not feel the sudden change, as they do in unpacked hives.

THE HONEY DEW AND WHERE IT IS FOUND.

A NEW THEORY AS TO ITS ORIGIN.

THE theories as to honey dews seem to be various; for nearly every one who finds it is confirmed in his opinion, that the plant upon which he found it is the rare producer of it. The trees are numerous on the leaves of which it may be found, among which are the papaw, cherry, sugar, and oak.

The dew is not a deposit on the leaf which accumulates by atmospheric changes, as common dews are deposited, but it is an exudation of the leaf itself, which occurs in the latter part of summer or the beginning of autumn. When the leaves are near the time of ripening, they exude a gummy saccharine substance, which dries and hardens during the bright summer and autumn days. This is moistened by the dews of night, and converted into a thin nectar, which the bees readily take up and carry to their homes, and make it into honey by their own *modus operandi*.

HONEY DEW NOT DETRIMENTAL TO THE BEES.

Honey dew has always been welcomed by the beekeepers in this locality, and is considered a great

benefit in aiding the bees to complete their winter stores. We cannot think it an injury to the bees, as stated by friend L. W. Reed, in his article that was clipped from the *Lewistown (Me.) Journal*, and published by Brother Root, in the Nov. GLEANINGS; neither do we regard the rains of August and September as special blessings in washing away the honey dew.

These rains prove to be a decided injury instead of a benefit as will be fully established by referring to September and October, 1868. These were unusually wet months. That year, I had *twelve* colonies of black bees. Next spring, all had perished, but the greater part of them died before winter set in, of what was then styled the *dysentery* or *cholera*. Hence the washing away of the honey dew was no blessing to these colonies, and the disease could not be attributed to the collecting of honey dew, but must be ascribed to some other cause.

My friend and neighbor, P. G. Stuart, from an apiary of fifty colonies, lost forty-five the same year I lost mine; and Judge P. B. Swing fared even worse than P. G. Stuart, losing forty-seven out of fifty-one colonies.

When the fall months have been dry, the bees have generally wintered best, being more free from disease, other than famine; hence we regard honey dews as beneficial to the bees.

In regard to where the honey dew is found, I stated, in the beginning of this article, that it is found on the papaw, sugar, cherry, and oak. Mr. P. G. Stuart has been one of the old time bee-keepers since 1844, and possessed the largest apiary known in the county. He is a regular progressive, and keeps up with the present day in the improvements, having most of his colonies in movable frame hives. He is a close observer, a man of strict integrity, and whose opinion is entitled to due credence. He has found honey dew on the papaw, sugar, and sparingly on the cherry, but never on the *beech*, yet does not deny its existence there.

HONEY DEW FROM THE OAK.

On the 22nd of September, 1879, I was walking through a wood's pasture, in which stood a few isolated trees. All of a sudden I heard the hum of honey bees. I took it for an absconding swarm, but soon found that I was mistaken, for the buzz was stationary. The noise attracted me to an oak tree, with a very bushy top, where I imagined I had found a swarm of bees; but, on close inspection, I saw they were working on the leaves, in as great numbers as I ever saw them on the linden when in full bloom. The thought of honey dew flashed through my brain, and in my unbounded enthusiasm I felt like shouting "Eureka! Eureka!! I have found it"—the dew. So I plucked some of the lower leaves, and soon found one with a drop or two of dew on the upper surface, which I eagerly tasted and found to be sweet as nectar. I then plucked more leaves, all richly laden with the delicious sweet. Then I went to the other side of the tree, and found it more abundant than before. I plucked a leaf to take home with me. This one was so full of honey dew that I had to carry it in a horizontal position to keep it from running off the leaf. It had several drops on it. There were no acorns on the tree that I could see. My old friend Stuart was shown the leaf, and pronounced it the most copious lot of it, on one leaf, he had ever seen. He has the leaf in his possession. The time was ten o'clock, A. M., when I first visited

the tree. In a few days, I went there again, about three, P. M., and, to my surprise, found my little pets still spending their time among the branches of the oak. As to the dew's being produced by insects,—it is too Homeopathic a dose to merit much attention.

J. B. CLINE.

Perlin's Mills, Clermont Co., O., Nov. 10, '79.

Your account, friend C., makes me think of the honey on my spider plants; but mine was only on the blossom, and not on the leaves. There was plenty of dew on the leaves, but it was just water, and not sweet at all. I presume you are aware of what has been reported in back numbers in regard to honey from the oak buds in the fall, and that your oak tree was entirely a different case. What kind of an oak was it? Who can give us more light? Is it really a fact, that trees sometimes bear honey from their leaves, as well as blossoms?

EXTRACTING UNSEALED HONEY IN THE FALL.

A REPORT THAT LOOKS AS IF IT WAS A WISE THING TO DO.

AS the advice given by you on page 451, in this month's GLEANINGS, regarding extracting unsealed stores, is not what I should like to follow, I would like to ask you, if you think the uncapped honey that is in brood combs at this season, and especially after so long a spell of beautiful dry weather, is ripe, or fit to leave in hives for winter use. We (my wife and I) have been busy extracting from our 130 colonies for two days; are only about half through at this time. We take out every frame and extract it, if it even has five cells of uncapped honey. I find some of this uncapped honey very thin indeed, and after trying many frames of the capped honey, I found it good and thick. My advice would be, throw out *every drop of unsealed honey* before putting bees in winter quarters. I am satisfied after last winter's experience that it pays to do this, extracting *thoroughly*. Those that had *no* uncapped honey had *no* dysentery, and those that did have uncapped honey, *did* have dysentery; but I hope to get through this coming winter without dysentery, if good, ripe honey for food, and a dry, well ventilated, frost proof cellar will do it. Surely, it does seem as if bee culture is going to be profitable. We ought, at least, to save our bees this winter, for, I assure you, they have not been very profitable to us the past season. We had 62 colonies in the spring, and now have 100 fair and 30 light colonies, and have had 3,000 lb. of honey, about 1,400 lb. comb, and 1,600 lb. extracted. In 1878, we had more than this amount of honey from 30 colonies. This year we got seven eighths of our honey from basswood, but no surplus from white clover.

HARRY BLACKBURN.

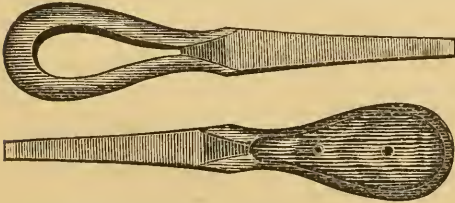
Webberville, Ingham Co., Mich., Nov. 15, 1879.

Many thanks, friend B. Much has been said about extracting the unsealed honey from the brood combs, but this is almost the first report I remember to have had, showing that it is a preventive of the dysentery. Are you sure that, in a few days after extracting, more unsealed honey would not be found? Do they not uncap it, and then bring water to dilute it, before they can use it to good advantage? If it prevents dysentery, and helps them to winter, extract it, by all means. Our hives contain so little unsealed honey,

I can hardly think it would be an advantage to extract it, but this is doubtless owing to the small amount of fall honey. I had supposed the bees would evaporate and ripen any unsealed honey, during a dry fall such as we have just had. Will you please tell us about what quantity you succeeded in getting per hive?

SCREW-DRIVERS THAT WON'T GET LOOSE IN THE HANDLES.

WE have sold so many of the all-metal screw-drivers, I have often thought of something of larger size, made in the same way. Screw-drivers of all sizes are in great plenty in the market, but they are either of poor temper or they will work loose in the handle, or, as it oftentimes happens, they have both faults. A short time ago, I sent to our wholesale hardware store for some good screw-drivers. They cost nearly half a dollar apiece; but, as they were beautifully polished, and had ebony handles, I thought they were perhaps worth it. Yesterday, failing to get a window up, after a rain, I went for one of these screw-drivers, and, the first I knew, it had "pulled out of the handle." I went down to the blacksmith and told him I wanted a good, large, stout screw-driver, of exactly the right temper, that could not come out of the handle. With some half-round iron, we bent up a handle and welded it most securely to the blade, in the way shown in the two cuts below:



HOME-MADE, ALL-METAL SCREW-DRIVERS.

The hole in the handle makes it lighter, is convenient to hang up the tool by, and answers for a wrench to turn nuts not very heavy. However, if it should be objected that it is not so easy for the hands, a piece of blackwalnut can be neatly inlaid, and then you have a wood-handled screw-driver that can never split or get away. If you can not get your blacksmith to make you one, I will furnish them as follows: Eight inches long, 25 c.; 12 inches long, 40 c.; inlaid with walnut, each, 10 c. more; if wanted by mail, add 5 c. and 8 c. respectively.

MOLLIE O. LARGE'S SPIDER PLANT.

BY OUR FRIEND MOLLIE HERSELF.

NO doubt, you all remember a puff I gave the spider plant last fall, and, friend Root, I believe you have eulogized it as highly as I did; but our experience with it this year, as a honey producing plant, will justify it. I had a few pet stalks in the garden, that bloomed the 20th of June, and those plants were in bloom until frost, which came to us about the middle of Sept. All through the dry weather, when there was not dew enough to moisten

your slippers, you could shake the nectar off from those plants, providing you were out before the bees. I believe our bees are not as greedy as yours to overload themselves, but I have seen several in a plant at the same time, and three jostling each other from one floweret. G. G. was examining a nucleus near those plants, late one evening, and must have shaken the stalks some, as the bees were busy on the ground in the morning, as much as to say, "No waste here". But there are two sides to every thing, so I will give you the other side for the column of "Blasted Hopes".

EXPERIENCE OF 1879.

As soon as spring opened, we sowed spider plant seed in beds, also expecting a great many volunteers; but the extremely dry spring and summer was so against us that we almost failed entirely. It was only by watering, and a great deal of labor that we saved any. We tried it in drills and broad cast, but the only way we got any was by transplanting from the beds. I intended to have four acres, but only succeeded in getting about one-sixth of an acre to live, not getting any rain for weeks at a time. When the plants are set and have grown about six inches high, nothing but frost will interfere with them. I would not advise any one to try the spider plant on a large scale, until he is convinced of its merit, then he will put forth every effort to make it a success, and, after all, from some cause or other, it may be he will be disappointed, as we were this season, expecting to have barrels of extracted, and crates of section, honey to stow away; but, alas! for blasted hopes. How much more tiresome to carry out sugar syrup than to carry in honey! Ah well, it works all right after all; for, if the bees in Christian Co., kept on increasing as they did a year ago, there would soon be a swarm in every bush, and no honey after all, for they would consume it for their support, and we not even get a smell of it.

MOLLIE O. LARGE.

Pine Hill Apiary, Millersville, Ills. Nov., 1879.

Honey Column.

Under this head will be inserted free of charge, the names of all those having honey to sell, as well as those wanting to buy. Please mention how much, what kind, and prices, as far as possible. As a general thing, I would not advise you to send your honey away, to be sold on commission. If near home, where you can look after it, it is often a very good way. By all means, develop your home market. For 25cts., we can furnish little boards to hang up in your door yard, with the words "Honey for Sale" neatly painted. If wanted by mail, 10c. extra for postage. Boards saying "Bees and Queens for Sale," same price.

CITY MARKETS.

CHICAGO.—Honey—Choice, in single comb boxes, 10@12c. Extracted, 6@8c.

Beeswax.—Choice, yellow, 20@22c. Darker grades, 12½@15c.

St. LOUIS.—Market for honey is good, demand greater than the supply. We quote: Choice White Comb, in 1 and 2 lb. sections, nicely crated, 36 to 50 lb. in crate, 18c. to 20c. per lb. Fall Honey, 2. to 4c. per lb. less. Extracted, in fair demand.—White Clover and Basswood, 11c. to 13c.; Buckwheat and Fall Honey, 8c. to 10c. Beeswax.—Prime, 22c., and in demand. R. C. GREER & Co.

For Sale, several hundred lb. of first class White Clover Honey, in 1 lb. sections, at very low prices for cash in advance. Send for price. D. E. BART.

Best's, Pa., Nov. 2, 1879.

I will sell, and deliver at R. R. in Jackson, 2 bbls. of 360 lb. each, of choice clover honey, at 10c. per lb.; the same of basswood honey, very fine, at 9c. and 2 bbls. of dark honey at 8c. The cash must accompany the order. Reference, A. I. Root.

J. H. TOWNLEY.

Tompkins, Jackson Co., Mich.

CUTTING A BEE TREE "DOWN SOUTH."

HOW THEY GOT 1000 LBS OF HONEY AND—SOME STINGS TOO.

DEAR NOVICE:—As cutting bee trees seems to have a fascination for you, I will try to relate my experience in cutting one, some two years ago. The swamp containing the bee trees was located about two miles from me, and I learned that the bees had occupied one of the trees (there were two) for a period of about five years; the other, some 60 feet from the first named, had been a bee tree for three years. Owing to the swamps all about, the trees being from 3 to 4 feet deep in water, no one had ever had the "brass" to go in and cut the trees. Besides, no one in the immediate vicinity knew or cared much for bees or bee trees.

We managed, four of us, to get through the swamp to the bee trees, by laying poles, as imprudent bridges, and walking on them, supported by a pole in our hands, one end being constantly kept on the bottom, in order to retain our equilibrium. That voyage was a very "precarious travel," you can rest assured. We went in proudly erect, laughing, joking, &c.; but, alas! our spirits were not long to remain in this joyous mood. I was accompanied by friends, W—— and Lamb; also by a young colored man, named Isaac. None of us were familiar with cutting bee trees; in fact, the colored boy, Isaac, knew *nothing* about bees at all.

Upon cutting into the tree, which was a large expression about three feet through, we soon found that it was hollow, a mere shell, in fact.

The two entrances used by the bees were probably forty feet from the ground, and about four feet apart, and each perhaps four inches in diameter.

While cutting the tree, I casually remarked to the colored boy, that as soon as the tree fell he would better run out upon the trunk and stop the entrances, so that the bees would be unable to come out too numerous, and sting us. I had no idea that he thought I was in earnest, but, as soon as the tree had reached the ground (having fallen partly on smaller trees, it did not get clear down into the water, remember), Isaac was far out among its branches. He was bravely attempting to stop the holes in the tree, but, alas! he found that he had prepared nothing with which to do so.

Upon the impulse of the moment, in his wild excitement, he yelled "I've got 'em, boss." I looked up between "dodging times" (bees were thick out at the stump by this time), and beheld him with one bare foot over each of the holes.

Just about this time, the bees were pouring out from a crack in the tree, on one side, out of Isaac's view, at the rate of a pint per second. Isaac's person was enveloped in only a thin muslin shirt, open at the back, and low in the neck, and thin, cotton pantaloons; he had no hat or shoes, or any protection for his face!

I gazed upon him in this trying dilemma in awe. I felt that there was going to be a "red hot" time in that swamp, in a few moments.

I looked upon Isaac's devoted person as "sacrificed;" aye, for an instant, thoughts of the "boy on the burning deck," "Fourth of July," and divers such brave sentiments flashed through my mind, at the sublime scene before me. In just about three seconds, Isaac seemed to have a cloud upon his manly countenance; then he realized that "There is no

place like"——"anywhere, *anywhere*, out of the"——bees!

He made one frantic plunge toward us, on his way to liberty, delivering a wild and fiend like yell, that would have curdled the blood of our western settlers, who are used to hearing the war whoop of the wild red man. I looked after him as best I could. He had, apparently, a full peck of bees working diligently upon his head, neck, and face; his naked, black shoulders were livid with the hybrids sticking thereto.

One partial glimpse of all this, and I was gazing upon vacancy. The bees reminded me of the tail of a comet, as they followed the boy at lightening speed. By this time, the bees were making it hot, terribly hot, at the stump of the felled tree, and, upon looking round, I beheld an intensely interesting tableau. Friends W—— and Lamb occupied *safe*, if not graceful, attitudes. W—— was in a hole of water up to his waist, with a whole mosquito-bar enveloping his head, shoulders, and arms. Lamb had fallen upon his knees, in the attitude of prayer, with his hands and arms plunged into the water to his elbows. He had about four cubic yards of wire cloth made into a bee hat, and in consequence could crawl under his bee hat and be pretty safe, excepting his hands and arms! *He couldn't begin to get them under!*

No amount of persuasion could induce friend W—— to leave his damp situation just yet though, to cut the thing short, I will briefly say, that we finally took about one hundred pounds of fine honey from the tree. I am sorry I can't end this by saying, "I took the bees home, put them in a movable frame hive, gave them an Italian queen, and to day they are as fine an Italian colony as any one would desire to see." No, we left the bees; we had enough honey, and bees (stings) to last us for several weeks. Three hours later, we interviewed Isaac. His feet were terribly stung on their bottoms, his shoulders were in a bad fix, his head——well, it was——like 16 heads rolled into one. It was swelled as large as a ten gallon keg, and reminded me somewhat of one, painted black.

His eyes were entirely closed up, and ever and anon, as a sickly smile passed over his dreary looking and saddened visage, his mouth appeared like an elongated bung-hole in a molasses hoghead.

He turned his head in my direction, and in plaintive tones wailed "Mr. Taylor, what made you gim me away in dis style for?"

I of course, told him, that I supposed he had more sense than to think that I was in earnest.

He says that he "don't b'lieve dem insex likes niggers noway." Anyhow, said he "I's done wid'em for ever more; fore goodness, I is!"

GLEANINGS, your A. B. C. A. B. J. and B. K. M., all combined, would not be able to make a bee keeper of Isaac now.

I will tell you some day of that other bee tree in the same swamp, if you survive this letter.

Yours Bee Treecially, R. C. TAYLOR.

Wilmington, N. C., Nov. 5, 1879.

WHAT BECOMES OF ALL THE DRONES?

A NEW THEORY.

JUDGING from what has been published of late, on the subject of drones, the question as to how long these live under ordinary circumstances, the manner in which they perish, &c., is still an open one. In August last, some beautifully marked

drones were hatched in one of my colonies, the progeny of an extra fine queen which I purchased from E. M. Hayhurst. The colony was fed daily, and the drones were permitted to go in and out as in the height of the swarming season. In less than thirty days from the time they took wing, not one drone could be seen, although the weather was beautiful and warm. If their home became intolerable to them, by reason of persecution, they might have taken shelter in at least two other colonies, which retained a succession of drones, but not one of these finely marked drones were to be seen any where. If drones live as long as the authors of bee literature would have us believe, what became of my finely marked pets?

Now I claim to have made something of a discovery. I think I may assume this much, as I have never seen anything in print, concerning what I am going to suggest. It is now well understood, that if the abdomen of a drone is pressed between the thumb and finger, he will explode with a convulsive jerk and die instantly. No one can try the experiment without being impressed with the suddenness of the death which follows. I have for a long time been of the opinion that this curious feature in the organism of the drone is no mere accident, but the handiwork of an all wise Creator, for a wise purpose, though we may not fully understand it at the present.

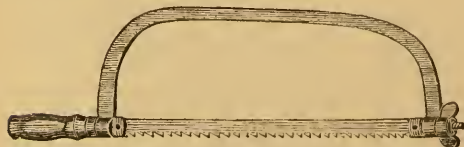
Can it be that a beneficent Creator has provided the drone with the means of his own "sudden destruction," as some compensation for his hard lot? Whether or not the poor drone, when driven from his home, outlived and persecuted, "having no where to lay his head," can "burst," quiver, and die, at his own option, I am not prepared to say. (Perhaps he "sort o'" remembers how his "daddy" did it, Brother Root.) But one thing I do know, and that is that drones do, at certain times and under certain circumstances, burst like the ripe pods of the "touch-me-not," while on the wing, and fall lifeless to the ground without any apparent cause, except that it is their nature to do so. This, I think, accounts for the sudden disappearance of drones when no succession is kept up.

G. W. DEMAREE.

Christiansburg, Shelby Co., Ky., Nov. 1, '79.

A NEW SAW FOR TAKING DOWN SWARMS.

A FEW days ago, a friend of mine who is a market gardener brought me a pruning saw which he said he brought from Germany, and asked if any of our boys could make him some like it. The peculiarity of this saw was, that the back of the blade was thin, like the edge of a knife, while the edge where the teeth were was quite thick. This enables it to go through any kind of green timber without pinching in the least. We finally made him one hundred of them, as shown in the cut below.



HAMMER'S PRUNING SAW.

This is not only a splendid saw for cutting off limbs, but it is a very handy saw anywhere, and will cut off a limb or a board in an incredibly short time. The blades are made of the celebrated saw steel, that is tempered without hammering. The blade is about 12 inches long by half an inch broad. As it will turn at any angle, this saw is very convenient for getting around among the limbs of trees, or for sawing in any direction. If you want one of them, we can send it for 75 cts.; 90, if sent by mail.

BEES EATING GRAPES.

YOUR criticism on the experiment of Mr. J. Elliott, in regard to bees destroying grapes, which appeared in the Nov. No. of GLEANINGS, must excite astonishment. Your position among bee keepers adds weight to a bad influence already at work to injure our industry. In all new localities, when honey producing begins to take on the character of an industry, we have this question to combat; I am, therefore, compelled, in the interest of self preservation, to challenge your conclusions.

I have duplicated the experience of Mr. Elliott this past season, with this addition; I dipped the bunch of grapes in a can of honey and laid it on the alighting board. I think the past season was drouthy enough in Kansas to give a fair test. The bees immediately, of course, gathered up all the honey. The grapes, they polished until they looked like black beads, and although these grapes lay there over two weeks, until they were shriveled up, they never broke the skin of one of them. I placed another bunch by the side of this one, and scratched open about half the berries. These were soon devoured except the skin. Those not scratched open were not punctured. These two bunches were selected by an experienced grape grower as the ripest in a vineyard of five acres, and when the grapes were dead ripe.

You say, "With their strong mandibles, bees can tear open substances much stronger than the skin of a grape." To get through the skin of a grape, it must be cut, not torn. Prof. Riley, whom you seem to follow, says the jaws of the bee and wasp are similar. Then their methods of cutting the skin of a grape must be similar. We can see a wasp alight upon a grape, and see his method of gnawing, and can tell the moment he gets through the skin and begins to suck the juice of the grape. If the bee does the same thing, he must do it in a similar manner, and it must take about as long. Now, I ask you or any one else to cite a single instance where the bee had been brushed off before he had punctured the skin and had left the imprint of his mandibles upon the skin of the grape? If you have never been quick enough to do this, you have no evidence that the bee is responsible for the punctures. If you reason only from analogy, saying the similarity of the jaws of bees and wasps, as we are told, makes it conclusive that the bees bite through the skins of grapes, we ask why not carry the analogy further and say the bees catch spiders, and build their cells of mud? There is no doubt that they have the power, but it is equally as certain that they have not the will.

You say, "Seeing sometimes deceives," which leaves the impression upon our mind, that you have many cases to cite, where bees have been seen

in all the stages of cutting through the skins of grapes. We would especially like to know why you have acquitted the black bees of this pernicious habit.

W. P. HOGARTY.

Quindaro, Kan., Nov. 11, 1879.

If the truth is going to harm our industry, I should say, "Let us have the harm." You, friend H., have proved by experiment that bees do not always puncture grapes; and, if I am correct, I have proved by experiment that they sometimes do. On my own vines they cleaned the fruit all off the vines as far as they went, and I have been told so many times by others, that they took all in the same way—especially the Delaware grapes, that I have no doubt of it. Several bee-keepers have acknowledged to me that bees did, at times, eat grapes, but said that it was not best to have it generally known. I have mentioned the matter before on these pages, and when I hear it so stoutly maintained that bees *can not* puncture grapes, I do not feel right to keep silent. I do not mean to carry the idea that grapes and bees can not be kept together, for I have five hundred vines, just planted right near my hives, for shade. I do this knowing the bees will be far less likely to touch them there than they would be if half a mile or more from the apiary. There are a great many who know that bees at times destroy grapes, if they will only speak out. I do not accuse black bees of this, because I do not think them smart enough; but, as I said before, I think, from the experience I have with Italians, I can teach any freshly imported strain to eat sweet grapes. A single bunch, or many bunches, would not, perhaps, be enough; but get them to working in heaps, as they do when robbing, and they will almost eat through inch boards. Our A B C class, many of them, know how it is.

BEES EATING GRAPES.

Bees are unable to injure fruit. This fact has been thoroughly ascertained by a committee for this purpose, appointed conjointly by the Society of Horticulture and Grape Culture, of Bordeaux, France, and the Society of Bee Culture, of La Gironde. Nearly all the members of this last society, owners of vineyards, are among the producers of the famous wine of Bordeaux, and were interested in the result of the investigation.

Sweet cherries, plums, apricots, pears, apples, peaches, and grapes were successively placed inside several bee hives, and remained there safe. Yet grapes, in France, have very thin skins, thinner than those of the grapes of this country.

You say in your November No., that bees bite the grapes with their mandibles, and that you can teach them to attack fruit. It is as much impossible, more impossible indeed, for bees to bite a berry of grapes, as for you to bite, with your teeth, a big water-melon, as long as it is whole.

Furthermore, bees are unable to enlarge a pin hole pierced in the grape berries. We ascertained this fact last September.

Our bees, finding no sweets in the few flowers which had survived our dry summer, went in swarms to the vineyards, clustering upon and attacking every berry damaged by the birds.

Of course, the owners of the vineyards situated near our apiaries were aroused against our bees,

and planned to obtain a law limiting the number of colonies to be kept in each locality.

To convince our neighbors that bees were unable to damage sound berries, we put some grapes in several colonies. There they remained over 15 days, without a berry being damaged.

Some having objected that probably the bees of the selected colonies had not yet learned to cut the skin of grapes, my son went to one vineyard with the party. He selected one of the bunches which were the most damaged and the most covered with bees; he cut all the damaged berries and allowed the bees to return to the bunch. Six hours after, the berries were found intact, not a bee having been able to cut them.

The next day, he returned to the vineyard, cut all the damaged berries of another bunch, and punctured with a pin a few of the remaining berries. At evening, he found the punctured berries having a small depression at the place of the puncture; this depression was caused by the bees, who had sucked through the pin hole all the juice they had been able to reach; but the pin hole had not been enlarged.

The same experiment was repeated on the following days, and always with the same result.

I hope that you will put my article in your next issue; for we can not be too careful to avoid giving arms to the enemies of bees and bee culture.

CHAS. DADANT.

Hamilton, Ill., Nov. 15, 1879.

Your experiments seem very conclusive, friend D., and I am glad you have made such careful experiments. Still, I can hardly think it possible that all of the grapes of the vines where I saw them, were broken berries. They were Concord, and very ripe. Would there not be a place about the stem, where a bee could get through the skin? The grapes were literally covered with Italians, which were actively loading up, and others were going and coming; when they got through, the vines were stripped. Mr. John White, Chatham Centre, Medina Co., O., had a vine on his house, loaded with grapes. The bees found them, learned how to puncture the skins, so he said, and, in a very short time, they stripped it of every berry. If the berries were also all broken in this case, we may be mistaken. Again; are broken berries of no value to the owner of the vineyard? I do not want to fall into error, but, if letting the truth come out will hurt bee-keepers, let us be hurt.

AGE OF DRONES.

I notice in GLEANINGS a communication from L. D. Worth, Reading Center, N. Y., in regard to drones living all winter. I have a hive with a large number of active drones now. The hive is strong with bees too. That they are at least 3 weeks old is sure, as I removed a black queen about that time, and the worker bees are nearly all Italians, while the drones are black.

E. H. WYNKOOP.

Catskill, N. Y., Nov. 17, 1879.

FDN. THAT WON'T SAG.

Did you ever try mixing plastering hair with wax for making fdn. to be used in brood chamber? If not, please try one pound.

[No; I have thought of it, but felt sure the bees would bite off the hairs; if they did not, yet the wax would not be near as stout as fine wires make it, and it would be nearly if not quite as much trouble. We have some fdn. now in the hives, containing the fibers of raw cotton, but the weather is too cool to have it worked out.]

CALIFORNIA AS A BEE KEEPING STATE.

ARTICLE NO. 4.

EDITOR OF GLEANINGS:—On page 231, June No., you think Mr. J. Archer's feat from one stock hardly possible. I have visited Mr. Archer's apiary several times, and I think it is certainly possible. In Mr. Archer's apiary, located one and a half miles from the beautiful city of Santa Barbara, bees can gather pollen or honey the entire year. You can commence dividing in February, and keep it up until the first of October, in a good season, and the last season was a good one. I know of even a greater multiplication and a larger production, just by natural increase. Mr. Archer was fortunate in selling his bees and honey at those prices; but I personally knew of the transaction. I do not say that he did not use some ready made comb, as he had quite a quantity on hand in the spring; but some allowance should be made for California and Californians, as, in a good season, it can beat the whole world, while, in a bad season, it is just as far the other way. As they have had two bad seasons out of three, it certainly does not look very encouraging. Californians invariably report the best side of every thing, especially to strangers. I have met one very enthusiastic bee-keeper here, who says he could make 100 swarms from one stock in one season, providing the season was a good one. I should like to try my hand at increase from one stock, just to see what could be done; but shall have to wait for a good season before commencing operations.

Many bees are starving to death now, but it is from bad management. E. GALLUP.

Scenega, Ventura Co., Cal.

ANTS VERSUS QUEEN BEES.

THAT ants will kill straggling bees, when caught alone, either from the native animosity which one tribe of insects bears towards another tribe, or from a desire to extract the honey contained within the bee, is a notorious fact; and more certainly will they attack a queen just issuing with a swarm, if she accidentally falls to the ground, for then she is overloaded with a full supply of honey, and rendered comparatively helpless from her surcharged ovaries. Last summer, I caught two young queens in a second swarm, and caged them in wooden cages, with wire cloth on one side, intending to take them a few miles to some queenless colonies. In order to keep them in good condition, I placed them on top of the quilt, in the second story of a frame hive, wire downward. In six hours, I went for them, and found both dead. I saw no cause for their death. There were no ants visible, no spiders, or any other of the many enemies of the bee genus, and I was inclined to believe they died from suffocation, although I had confined many others more closely than these, with no bad results. Two weeks later, I repeated precisely the same operation, and, in a few hours, say three or perhaps four, went for the caged queens as before. One of them was just dead, and four common sized, red ants were clinging to her thorax, under the wings. The other queen was in *articulo mortis*, with a lot of voracious ants clinging to her in the same manner, as to the first queen. This sad result explained the cause of the fate of the first two queens, under the same circum-

stances. And thus I readily approve of the warning given by some correspondents of the bee journals, in regard to queens with clipped wings, and suggesting the danger that threatens them, when, in attempting to follow a swarm, they fall to the earth,—the danger of being victimized by the antipathy or cupidity of a remorseless set of ants.

I have often seen large numbers of ants secreted about bee hives, particularly in wet seasons, but have been inclined to think they selected such localities to escape the wet, saturated earth, which is the natural nidus of such insects, and also to house in some congenial den, which the temperature of a colony of bees affords. With the present light before me, I do not believe ants destroy much honey, when they can obtain other preferable food.

GEORGE B. PETERS.

Council Bend, Ark., Oct. 28, 1879.

While it is quite evident, friend P., that the two latter queens were killed by the ants, I cannot feel sure that this was the case with the former ones, as you say you saw no ants about. I have often had queens die thus in a few hours after being caged, but always when they were without food, and it was to this fact that I attributed their death. I once was inclined to think ants enemies, but a closer examination made me think otherwise. I may still be mistaken, and it may be that the ants, with you, friend P., are different from ours.

HOW MANY FRAMES SHOULD THE BEES COVER IN WINTER?

HOW MANY IN SUMMER? &C.

IAM "in a peck of trouble" about my bees and hives. I am using the Langstroth frame in Simplicity and chaff hives. I used a two story chaff hive, but it seemed too large. Since then, I have made and used a single story hive, and a double tenement, story and a half hive. Not any of these suit me, as, since the approach of cold weather, my strongest stocks occupy 5 frames only.

The brood in any one of my hives, during the past season, could have been put into 3 frames; but, instead of being in 3 frames, it was scattered through from 4 to 7, the remaining portions of the frames being occupied by honey and pollen.

Perhaps this honey was in the way, but you tell us the bees will remove it from the comb when the cells occupied by it are needed for brood rearing. A neighbor extracted 100lb. from 5 stocks, while my 6 gave less than 10lb. of comb honey. These few sections sold well, in the village. Perhaps it would pay me better to extract than work for comb honey.

Now, a few questions. How many L. frames are used for brood rearing? What is the average number of frames your bees cover when ready for winter? Should chaff cushion division boards be used in a chaff hive when there is room for one or more? Are colonies larger in some localities than in others?

Fairfield, Ct., Oct. 27, '79. WM. S. MOREHOUSE.

If I understand you correctly, friend M., I do not think you have any cause to worry. If the cluster of bees extends to 5 frames, during freezing weather, it is a very fair colony. If the brood that would go into 3 frames is scattered through 7, it is an indication that you have given them more room, a little too fast. More brood will be raised, if you make them fill each frame full, before

you give them another. Of course, each frame must contain some honey, and some pollen, but there should be no cells in it without brood, pollen, or honey (unless occupied or ready to be occupied with eggs), when you give them an additional frame. The honey may be in the way when honey is coming in, but I should have little fear of honey being in the way when they have ceased gathering it, for they would soon eat out some empty cells to cluster in. During freezing weather, our bees usually contract into a round ball, and, if this ball includes 5 frames, it is a pretty fair colony. A still heavier colony, in a good chaff hive, may fill the hive so completely that they will seldom contract into a ball, and any colony is aided in this, by reducing the size of their wintering chamber. To do this, I would take out all the frames I could (and still leave them plenty of winter stores), and put in their places chaff cushions. Colonies are generally larger in localities where there has been an uninterrupted flow of honey during the whole season, but I do not know that locality makes any difference otherwise. The size of the colony depends very much on what kind of a queen they have. A good queen will often fill, pretty fairly, every one of the 10 combs in the lower story.

WHAT SHALL WE PUT WITH WAX TO MAKE THE COMBS TOUGH?

FURTHER DEVELOPMENTS.

IN the Oct. No., I noticed the inquiry, "What do the bees do with the fur they nibble from each other," and "Why are some combs dark colored when first built?" You seem anxious to investigate the cause, therefore I will give you my observations in relation to it.

Last April, after setting my bees out from the cellar, I fed a weak swarm with flour candy to induce breeding. I put it in a small frame such as I use in the upper half story, 5 inches deep, with an ounce vial filled with water, cork, and wick. They took it readily, and began to build comb of brown greyish color, very tough and tenacious. It would bend without breaking. After building about 3 in. in diameter, and filling it with eggs, they continued to build below the frame to the bottom of the hive, and raised a fine comb of brood before there was any in other combs. I have never noticed anything like it before or since. It appeared strange to me, and I thought, at the time, I would write you about it, but have postponed it.

Now, if you could make fdn. out of such material, what an improvement it would be to prevent sagging! I have been using soft carpet paper, nailed to frames for division boards, but found the bees cut it to pieces so badly, I had to abandon it in a measure. A good deal of the fibre was found in and about the hives. Did the bees use it to mix with wax for brood combs? Did the flour candy have anything to do with it?

If you would obtain some fine pulp from a paper mill and incorporate it properly with the wax and work it for fdn., you would get the result.

Ann Arbor, Mich., Oct. 23, '79. N. A. PRUDDEN.

Many thanks, friend P. Our boys have been at work at the wax with their microscopes, and had just decided, when you

letter came, that the "stiffening" in wax is the fibres of the cocoons from brood combs. Perhaps this is generally the case, when they are building these dark, tough combs, near old brood combs, but I was pretty sure I had seen just such comb building as you describe, yet I could find no piece of it when they were making their investigations. I think it is quite probable that the comb you mention was made with the fiber of the paper mixed in with the wax. If you can find the piece now, send it and I will have the boys examine it under the microscope. I think the flour candy, without doubt, assisted in the matter.

Ladies' Department.

MR. ROOT:—We received a postal from you, and the bees arrived the day following that on which the card came. We postponed writing in acknowledgement, until we had something of moment to communicate concerning the bees. Mr. Price thinks there are no beauties to match his Italians, but he introduced them before he found there were directions accompanying them. He had not one particle of trouble with them, but I have trouble with him. His Italian queen has succeeded the American wife in his attentions. Every thing about our home is flavored with bee conversation.

We thank you for your promptness (in which you are not a "novice") in sending the bees. The queen bee has grown since her arrival. I dropped a very ripe watermelon in the garden, yesterday, and it broke in halves. This morning, I found it *lined* with Italian workers, extracting the sweetened water.

In regard to the photograph, I cannot thank you enough. "Little Blue Eyes" is certainly a child to be proud of, and her picture will be treated with as choice care as the little lady herself deserves. In regard to your age (which I certainly think was a rather indelicate topic for me to have questioned you upon) you just drew the bordering line nicely between my husband's idea and mine. I detect an abundance of fun in your countenance, and your little girl's pleasant expression gives a good index to the kindness in her father's disposition.

Enclosed, please find \$1.00 for your GLEANINGS, for one year. I find that, as the bees receive increased attention, our "wood-pile" receives increased neglect; and, that I may regulate the order of things in that direction, please address the books to me. Anxiously awaiting Sept. No. of GLEANINGS,

I am respectfully, MRS. CHARLES E. PRICE.
Smithtown Branch, Suffolk Co., L. I., Sept. 6, '79.

I have four stands of black bees, neither of which swarmed this summer. I have taken about one hundred pounds of honey this season, which is better than some of my neighbors have done, who have 25 or 30 colonies. This has been a bad honey year here. I have never seen an Italian queen, and was very anxious to have one this fall, but my husband persuaded me to wait till spring; "But a woman persuaded against her will" has the same anxiety still. I just must have them in the spring, and early too, if I can get them. I am a young A B C scholar, and take GLEANINGS (which I think splendid) with a neighbor, and read until my head is so full of bee reading, I am in the same condition in which Mr. Merry Banks is in the August number.

MRS. L. C. CARPENTIER.

Hustontville, Lincoln Co., Ky., Oct., 1879.

REPORT FROM AN A B C SCHOLAR.

On the 15th of May, I received from Mrs. Lizzie Cotton a hive of Italian bees, with "Directions for Managing Bees." Being a novice, I at once purchased "Quinby's New Bee-Keeping," "Cook's Manual," and the A B C book, and also subscribed for the GLEANINGS. The bees came 50 miles by rail, and 12 by stage. The apple trees were then in bloom, and later wild cherry, which abounds here, white clover, and mellilot, motherwort, catnip, mignonnette, &c. I noticed that they frequented the sweet

clover and mignonnette in large numbers, but seldom saw any on the catnip, although in some places they were planted together. As soon as the motherwort commenced to bloom, I saw them busy on that. They seemed to favor mignonnette and motherwort. It was the "Giant Mignonnette," of course. They sent out a large swarm July 15, which I had some difficulty in hiving. They staid on the outside two days, and then I drove them in with smoke. I had no farther trouble with the swarm, but not so with the old hive. Thus far, I had received no stings. The bees would often get on my fingers, but I was careful not to injure them, and escaped stings, though I used neither gloves nor veil. But, during the latter part of August, I noticed the bees were growing cross. If I ventured in the vicinity of the hive, they gave chase, and gave me a badly swollen eye, if not a black one.

I frequently saw them coming to the hive in droves, and when a shower came up suddenly, they would come home in droves, and cluster on the outside by the entrance, and it would be several minutes before they would all get in. This, and their being so cross set me to thinking. The other stand was some little distance from the old hive, at the base of a hill. I frequently went from one stand to the other but saw no disturbance at the latter until later in the season, and then it was trifling in comparison. Neighbor A. who lives a few rods from us has 4 hives of the native bees. They stand close together in a covered frame, are in old box hives, and quite small ones at that. Mr. A. had kept bees for 3 years, on shares. At the commencement of this season they had 2 colonies. One hive sent out 3 swarms, and the other 2. Two swarms absconded; one staid in the hive 2 days, the other 10 days. Another, after staying on the outside of the hive 4 days went back in. Well, about the middle of September, some 2 weeks from the time I first noticed anything unusual about the hive, I had notice from neighbor A. that my bees were plundering their hives, and that they had closed all the entrances, and were throwing boiling hot water on my bees which were clustered at the entrances and on the tops. They were on every hive. I at once wrote to Mrs. Cotton for advice. She wrote me not to move the bees, nor meddle with them at all, for they could take care of themselves. I lost quantities of bees, but they gradually gave up going there, and I began to feed both hives all they would take, and thought my troubles were over. But, to-day, I had a note from the owner of a cider mill a quarter of a mile off, that my yellow jackets were about his mill, getting into the cider and on the pomace and into mischief generally, and stinging occasionally.

Now, Mr. Editor, what shall I do? The A B C book tells me cider is death to bees, providing any escape being drowned. Must I give up bee-keeping? for the cider mill is a fixture. I wait a reply. The bees are storing in the boxes now. When is the best time to put in the division board and do up for winter? Please tell me through GLEANINGS what to do to keep my bees at home. TYRO.

Alna, Lincoln Co., Me., Oct. 23, 1879.

I am very glad of one point in your letter, my friend, and that is, that Mrs. Cotton does, sometimes, fill orders, and answer letters. Perhaps she shows a preference toward her own sex; or is she beginning to do better, and getting ready to fix up all her old accounts? She has not yet sent my goods, or returned the money, but she has a great many times promised to do so. When she does, there is quite a little crowd that are really anxious for theirs.

After your old colony sent out a swarm, it would probably become hybrid, and is not this what made them cross? Bees are usually cross in the fall, after the yield of honey is over. It was rather rough in your neighbor, to throw boiling water on your bees, after he had got his hives closed. Can you not curtain the cider mill, when the bees trouble it, as I directed in the A B C? I fear you are borrowing trouble somewhat. Many seasons, the bees will not go near the cider mill at all, and it is only for a few

weeks that they do so, in any season. As the weather gets a little cooler, they will get over it. Mrs. Cotton's advice happened to be about right, I guess, this time. Put in the division boards at any time you choose after they have ceased getting honey. You will have no trouble in keeping your bees at home when honey comes again next season, and, if they trouble you next fall, you must get that neighbor a little better posted, and you two together can fix the robbing. Do the same with the cider mill man, and carry each of them a nice plate of honey. This is a "heap better" than quarreling, or hard feelings.

SPRING DWINDLING; CAUSE AND CURE.

As others are writing their theories on spring dwindling, I would write mine. It is simply starvation, with plenty of honey in their cells, but all granulated; so they can neither eat it, nor feed it to their larvae; they dash out to the first mud hole, filled with ice or frozen mud, where the sun has thawed a little water. This they suck up, then to warm themselves and the ice water in them, you will see them on the fence, old boards, chips, or any place where there is a bit of sunshine to be found, apparently enjoying themselves to the utmost of their ability. This ice water chilling them, they in turn chill the bees in the hive. The cold water mixed with the honey and pollen fed to the larvae chills them, so they all die together, leaving honey in the hive.

Your description of the symptoms, friend A., is all right, but I fear your deductions are wrong. We often have spring dwindling, where the honey is too thin and watery.

TESTED QUEENS TURNING HYBRIDS.

Like you, I do not believe L. R. Jackson's queen was fertilized the second time, after having her wing clipped (page 392 GLEANINGS), but his, like Wm. L. King's, demoralized queens come and go after their own sweet will (304 GLEANINGS). Some other queen entered the home of his clipped Italian, and filled her combs with hybrids. Queens, as well as drones, are freebooters during the honey season. If it were not for this fact, we could never introduce a queen. All would have to stay in their own homes or be killed.

I think your explanations may be right, in at least some instances.

WAX EXTRACTING; HOW TO CLEAN THE CLOTH BAGS.

In regard to getting out wax, you say it is best to throw away the cloths through which it has been strained. Now, I think that poor economy. They can be cleaned easily by putting a layer of wood ashes into a kettle then a layer of strainers, and so on alternately, until the kettle is full. Then fill with water, boil, and wash as you would other clothes. This takes the wax all out. The lye without the ashes will not take off the wax.

Olivet, Mich., Oct. 17, 1879.

ALZAIDA.

Thanks; I am very glad to see economy, where the time is not of more value than the article. The lye from the wood ashes is very easily tried.

I do feel just a bit inclined to scold. After writing way out to Ohio, and necessarily waiting a week for a reply, then to get an answer so brief that it does not satisfy or fully cover my questions, is a little too bad; especially, as the weather will not consent to moderate till I can hear from you. I know you have a great deal to do in the way of correspondence, but so have a great many business houses who write longer letters.

I really beg pardon, friend Anna, if I did not answer your questions as fully as I could; are you sure you do not give me credit for more wisdom than I really possess? I will try again, and scrape up all the energy I have from a multitude of other things that

press, and I fear, sometimes worry me. Now I am good natured, and ready for business. What is it?

One of my leading questions remains unanswered. I will re-state my case. I have 3 hives of bees that are not sufficiently provided with food for winter.

HOW TO FEED IN THE WINTER.

They will not take syrup from behind a division board, or from the top of frames, from either pepper box or Simp. feeder. What am I to do?

Why, bless your heart, I knew they wouldn't, at this time of the year; havn't I told you so often? Give 'em candy, to be sure.

Candy? Well, I don't understand candy; can I give them enough candy at once, to last through the winter, or must it be fed at intervals? If all at once, then where should it be put in the hive? and *how much* will it take to feed an ordinary single swarm?

There! There! do you suppose I have got sense enough to keep all this in my head at once, and not miss the leading question of the whole again? Let me see. You can make the candy as I told you how in the A B C book, you can buy it of the confectioners, or you can send to me for it. Yes; you can give a colony enough at once, to last all winter, but I do not believe I would undertake to do so, because it will require so large a block, that it will lie like ice over the cluster, and they cannot keep such a lump warm near as well as they could some small lumps or sticks, right on the frames, just over the cluster. To make it sure, you want them to come up and cluster on and among the lumps or sticks. I have given colonies enough candy to last them all winter, by giving them two cakes, just about the size and shape of ordinary building bricks, say from 3 to 4 lb. each. Cover it well with warm woollens, or chaff cushions, and tuck them up as snugly, to keep out the frost, as you would one of the children.

I would prefer not to open a hive during the winter, but if it is necessary to feed at intervals, how much and in what way should it be given?

Very well, you can give them enough to last until the next warm spell. You can open the hives and see to them any day when it is warm enough so that the snow is melting slightly. Put it right in the cluster among them, and if they have no honey, be very sure they don't get entirely out.

I shall make my candy, if I must use it, of coffee A.

Very well; coffee A is just as good as any thing else, and, as it will go farther and the bees like it rather better, it may be safer for you than grape sugar, unless you put in a little of the grape sugar to stop the tendency of the candy to grain.

What I would like to do, is to feed, now, sufficient stores to last through.

You can do it, if you wish, as I have told you.

I also have the idea that, in case several frames were filled with candy, the bees would eat the one nearest to them, and then be unable to cross the intervening space to the next, and so starve. Am I right? Please let me know. ANNA L. GRAY.

Bloomfield, Conn., Nov. 10, 1879.

Yes; such will be liable to be the case, unless your colony is very strong in bees, and then I should hardly like to risk more

than one frame of candy in a hive at the same time. If they once get well to work on it, it seems to furnish them heat to withstand the cold; but, in such a case, they consume quite an amount of stores, compared to what bees do when they winter in their quiet natural way. I have rather preferred the tray right over the bees (mentioned in Oct. No.) to candy in a frame, but even with this, I find that, in cool weather, they only consume the candy right over the cluster. It is on this account that I would, for cold weather, rather risk the small lumps or sticks right over the cluster. Trusting to candy alone is rather risky, especially in the hands of a beginner, although bees can be wintered on it, without *any* other stores. Cakes of maple sugar answer nicely in place of candy. Now, Miss Anna, if you do just as I say, and your bees all die, I will give you one of mine in the spring. Havn't I been real good this time?

NOTES FROM THE BANNER APIARY. NO. 1.

THE BANNER APIARY.

Don't think that I'm conceited,
Or wish to put on style;
For names, when first repeated,
Will often cause a smile.

I'll tell you how 'twas christened,
The reasons all explain;
Please wait until you've listened,
Before you call me vain.

My tenement hive, noted
For shingles and for chaff,
O'er which a banner floated
From a nice, painted staff,

Had bees that robb'd the posies,
With flights that ne'er did lag;
While they turned up their noses
At hives that had no flag.

Their neighbors saw their manners,
And then began to shirk;
And 'till they, too, had banners,
Declared they would not work.

At last, these bees were humored,
And furnished with a flag;
And then how soon 'twas rumored,
That *they'd* begun to brag.

These prauks the bees kept noting
(I wished them *all* to thrive),
So banners soon were floating
O'er almost every hive.

And when in such a manner,
My *own* bee-yard was decked,
Its name, of course, was banner;
What else could you expect?

My apiary's glowing
With pride o'er such a name:
I'll *work* to keep it growing,
And worthy of the same.

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich.

Heads of Grain,

From Different Fields.

CHILLED BEES REVIVING.

I HAVE learned a lesson this morning. I tipped my box hive over, and found a pint of dead bees on the bottom board. I brushed them on the ground, and took a handful and threw them on the hives, but they did not touch them. I went out 3 hours afterward, and my dead bees were coming to life again. The night had been very cold, but a nice day followed, and that is what saved the bees. There is not comb enough for all of them, so they clustered down below the combs. To-morrow I shall pack them in a box, with 8 inches of chaff around them, and shall feed them so that they can fill up their empty combs.

12 o'clock.—They still are coming to life. "Live and learn" is a good motto for beginners as well as old ones. I think that bees which are frozen in winter could often be saved by putting them in a warm room.

JERRY MOFFITT.

Oxford, Worcester Co., Mass., Oct. 26, 1879.

I think your bees had been chilled but a short time, friend M. They will revive in the way you mention, if they are warmed up and fed inside of 24 or 48 hours; but if you let them lie more than that time, they are dead "for sure." No one yet has succeeded in freezing bees up in the fall, and thawing them out again in the spring, so as to save their stores, although it is a matter that has been frequently discussed in our back numbers.

PACKAGES FOR EXTRACTED HONEY.

I want some kind of a package for candied honey, and have been thinking a tin box, 4 x 6 x 2, to hold two pounds, would be about the thing, if it would not cost too much. If the honey is kept in a cool room until wanted for use, by slightly warming the bottom of the box and running a knife along the sides, the honey would come out like so much maple sugar and would look almost as nice as comb honey. I have some that I caked in section boxes, that looks very nice. By lining the sections with writing paper, the honey slips out very nicely when cold. What do you think of the idea? and what could you make the boxes for, by the hundred? I suppose the covers could be pressed out also. At what price, can you furnish two quart pails with bail and cover?

CHAS. OLIVER.

Spring, Crawford Co., Pa., Oct., 1879.

We can make the boxes you mention, by the hundred, for 5c. each: the 2 quart tin pails, by the hundred, 10c. each. I have thought of the section box for a package of extracted honey, and it will be much cheaper than the others, if we can get our candied honey so dry that it will not be sticky and dauby.

A BIG REPORT FROM AN A B C SCHOLAR.

Would you advise water and candy so late as this, to incite brood rearing? Do you think I could keep them going slowly all winter, that is raising brood, or would it be better to leave them until Feb.? I have 21 stocks, and chaff hives for all of them. I am going to try to bring them all through in good style. I had 7 in the spring, increased to the above number, and took of box honey 500lb. in 44 x 44 sections, and 230lb. of extracted honey. It all sold like hot cakes. I didn't have half enough. Extracted honey sells here better than comb honey. I got 10c per lb. for extracted honey and 16c a section, as they ran.

W. G. SALTFOED.

Poughkeepsie, N. Y., Oct. 27, 1879.

Why, you did splendidly, friend S. Over 100lb. each from your original stocks, and trebled your number! Doolittle will have to look out for his laurels. I should be a little afraid to undertake feeding for brood

rearing at this time of the year, but it might turn out all right. I have fed the flour candy, and with it reared brood all winter long, but I have never given water in cold weather.

STILL ANOTHER HINT ON INTRODUCING.

I received the two queens you sent me, Saturday night. They were the first queens that ever got off the cars, at this place. I removed the queens from two hives, and placed the cages on top of the frames as directed, and left them there until Monday. As they seemed all right, I thought I would let one out. Robbers were flying around as thick as hail in a hail storm, and when the Italians came out of the cage, they treated them the same as they did the robbers, queen and all. Of course, I didn't let them hurt the queen, but put her back into the cage, and began to wonder how I would ever get her in there. Finally, I thought I would try another plan. I got all of the Italians out of the cage but the queen, then took from the hive to which I wished to introduce her, ten bees that were so full of honey they didn't care about stinging, and put them in the cage with her, and put the cage back on the frames, and left it there until next day, when I let them out again. This time, they let her run down between the combs all right. I next tried the other queen which had been on the frames 60 hours, but had to treat her the same. I looked at them to-day, and they are all right.

AND A BIG REPORT FROM A CANADIAN A B C SCHOLAR.

I had 11 colonies of bees last fall, wintered them all, transferred them all this spring, took 1,800 lb. of clover and basswood honey from them, and increased to 26 strong colonies.

JAMES MCINTYRE.

Lynden, Ont., Ca. Sept. 30, 1879.

BEE CULTURE IN THE BLUE GRASS REGIONS OF KY., ETC.

The honey season, proper, is quite short here, in the best of seasons. The great honey months are May and June. Natural swarming takes place, generally, between the 15th of May and the 15th of June. Swarms coming after the latter date do not often get a living from the fields. The flow of honey is prodigious, some seasons, from white clover, &c., but it does not last long enough to make the yield great. My best stock, in 1878, made about 90lb. of comb (surplus) honey and gave a large swarm on the 18th of May, which made a surplus of about 45lb. So you see, this colony and its increase made about 130lb. of honey in comb; but this was an exception. Fifty lbs. of comb honey is a good average. My bees averaged but about 30lb. this season. I did not extract. The season was too poor, I thought, for that. Your experience with the locust tree differs from mine. I believe the locust always bears honey here, when there are blossoms.

A SUBSTITUTE FOR ENAMELED CLOTH.

The most satisfactory cover I have ever used for covering frames is a piece of duck, or something similar, painted with "oxide of iron" paint, mixed with linseed oil, nothing more. This is the only paint I know of that leaves the cloth pliable, like rubber goods. These covers lie so nice and flat! and you know how important that is. To paint them, they should be stretched on a smooth surface and filled with paint (one coat), then suffered to lie till the paint begins to harden. When they should be taken up and dried in the sun. If taken up too soon, the paint will run out of the goods. Try it, if not old, and be convinced.

Natural swarming was nearly an entire failure here, this season. I had only 2 natural swarms. An abundant flow of honey did not last long enough, at any one time to insure natural increase.

Christiansburg, Ky., Nov. 1, '79. G. W. DEMAREE.

100LB. OF HONEY AND DIDN'T KNOW IT, &C.

I thought that I should not renew GLEANINGS this year, as the times were so very hard, but on reading Our Homes for Nov., I thought that I could not do without it. I would be glad if I could get it into every family in our county. I have only 7 stands in my apiary. I was taking the top stories off yesterday and putting on blankets for the winter, and, to my astonishment, I found about 100lb. of nice comb honey which I am selling at 20c. per lb. So I found that there was more money in the bees than I thought for, as they had been neglected so much.

I hope to give them more attention than I hitherto have done. But, Mr. Root, every time that I take honey from them, they sting me on the hands. I always protect my face with a veil, then they go for my hands, and I thought that I should have to send to you for a pair of gloves. Let me know the price of gloves and oblige.

W. C. HILL.

Jefferson, Texas, Nov. 6, 1879.

Thanks for your good opinion, friend H. But do you not need a smoker, rather than gloves? There must be something wrong somewhere, when the bees sting your hands as you say.

CAN'T AFFORD TO TAKE GLEANINGS.

I wish I could afford to take GLEANINGS this winter, but cannot. A hail storm, July 16th, destroyed almost all our crops, especially *buckwheat*. Still, thanks in great measure to GLEANINGS and A B C, I can make a good report for a beginner. I had 17 stocks in the spring, and have 38 now, in fine condition for winter. In the spring, 2 stocks were Italians, all the rest blacks in box hives. Now all are transferred, and all but 5 Italianized. I took 257lb. of section honey, and about 200 of extracted. I made all my own hives, frames, sections, &c., which is too much work for lazy folks. I think bee-keepers earn all the honey they get. They have to work as hard as the bees for it. But then the bees are our pets. I am quite insensible to the effects of stings.

WM. H. HART.

Poughkeepsie, N. Y., Nov. 6, 1879.

Perhaps, my friends, you will say I have a selfish motive in what I am about to say, and perhaps I have, but as it is for your good too, as well as my own, I think I would best say it. When going to school, did you ever notice the way in which a boy who has "staid out" a few days looks, when he comes to recite? Do you remember his vacant stare when a part of the lesson comes up, which hinges directly on the one of the previous days? When he tries to make up by shrewdness, what he lacks in knowledge, it is sometimes pitiable to those who are posted and familiar with the ground. Now the journal for this winter will cost you, friend H., less than 25c.; less, in fact, than 1-10 of the value of the poorest one of your 38 colonies of bees, or the value of 2lb. of honey, and yet you cannot afford it. There! I beg pardon; I shall get to scolding, if I keep on. I hope you will take one or more of the other journals, if you do not take GLEANINGS.

INTRODUCING A QUEEN BY A NOVEL METHOD.

I received my second imported queen all right, and have had the opportunity of seeing a limited number of eggs, deposited by her, which I had not expected, as the most of my queens had ceased laying. I had quite a time getting a nucleus started for her with just hatching bees, as we had no very suitable place to keep the combs warm. I just took a glass jar and went to a hive that had plenty of young bees, and picked off young bees just hatched, one or two at a time as I could catch them, and put them in the jar. When I got about a double handful, I put them in a hive with a couple of combs without brood, turned the queen loose, and kept on picking young bees every now and then for two or three days, until I had enough to cover and keep warm a frame of brood, and have since been adding frames of brood as fast as needed, and hope to get them strong enough to be in good condition for winter. I commenced in the spring, with 15, and expect to go into the winter with about 40 good colonies. I have taken about 500lb. of surplus besides. I made my increase by artificial swarming.

Centreville, O., Oct. 1, '79. GEO. W. LAWSON.

Your plan is not quite new, friend L., and I am sorry to say it is not always successful. I have known young bees to attack a queen, when they looked as if they could not be more than a day old; but I have never

known a bee hatched in the hive with the new queen to attack her. We always brush every bee from combs of hatching brood, when introducing a valuable queen; still, I suppose your plan will succeed in the great majority of cases. It is a slow process, as I know by experience.

ARE LARGE SWARMS ALWAYS THE MOST PROFITABLE TO WINTER?

I wish to tell you of a small August swarm of bees that came out and lit on a small bush, was hived in an old fashioned hive, set on a bench and kept there until cold weather came, then was placed on a shelf in the wood-house, with probably 10lb. of honey to keep it all winter, and it finally made a live of it, and that same swarm sent out 3 very large swarms that summer. Does not this show a very prolific queen? I judge from this, that it is not always the large amount of bees which are kept over winter, that does the extra business. I was talking with a friend to-day, who had 8 swarms of bees, and lost all but one, and he told me that he had corked them up tight, and they had sweat themselves to death. The water had run out of the hives. I think bees should be kept dry and warm, and the man that fails to do this can surely count some loss. Now, friend Novice, do you keep all your bees all winter without loss of any kind? I am trying to find those who are most successful in wintering bees, and am going to try to imitate them.

R. A. LABAR.

Portland, Penn., Nov. 8, 1879.

Large stocks are not always the most profitable, and there are those who go so far as to say they would as soon have a quart of bees to commence with in the spring, as to have more; but I can by no means agree with them. I never saw a colony with too many bees in it, either in the spring or at any other time; but, at the same time, a quart of young bees in the spring might be of more value than a peck of old bees. The colony you mentioned being a second swarm, probably went into winter quarters with all young bees. I once obtained swarms from neighbors who were going to brimstone them, and filled my hives to overflowing. They ate a great quantity of food, and then (as they were all about of the same age) all died in the spring at pretty nearly the same time, and left my stocks little, if any, better than if they had not been given such a drove of boarders through the winter. Had I made them raise brood in the fall, by feeding, the case would, probably, have been different. You are right in regard to keeping the bees dry in the winter.

A NEW FEATURE IN SIDE STORING; HONEY BY THE "JUG FULL."

A box hive man, a friend of mine, was telling me of a new side storing box, a 2 gal. jug that he accidentally left by the side of one of his hives last season. The bees filled it with honey this season, and when the nights got cold in the fall, they returned to the hive, leaving the jug full of honey. He did not get any surplus, so he is like friend Hasty, he wants that honey. He is afraid that he cannot get it without breaking the favorite jug. Don't tell Mitchell; he will have a patent on it.

Whitestown, Ind., Oct. 11, 1879.

S. H. LANE.

Now those bees were very inconsiderate, to go and put *comb* honey into a jug; any bees of common sense should have known it could not be poured out. By the way, friend L., was it not a small second swarm that took up its quarters there? I should hardly suppose they would go into a jug to store their surplus honey, unless the nose of the jug were inserted in a knot hole in the hive (this last idea is my invention, mind you), or something of the kind.

COVERS TO ONE AND ONE HALF STORY HIVES.

I see on page 451, Nov. No. of GLEANINGS, that friend W. E. Flower complains that the cover of his story and a half hive leaks. I am surprised at that. I bought one of you last winter, in the flat though, and put it up myself, in a few minutes. The top boards both work into a groove cut in ridge piece, and I gave a good coat of paint (white lead, very thick) inside the groove, and then drove the pieces in tight. This top has never leaked one drop, and, in fact, can't leak when put together in the manner described above.

CASE OF SECTIONS TO THE 1½ STORY HIVE.

The case of 28 sections I like. I place a broad frame upon each side of lower story, and watch them below, as well as above, and as fast as one section box is sealed over, I take it from the bees substituting another box with fdn. starters. I believe that friend F. will be better pleased with them if he does try them another season. I think, in future, that I shall use the half story, exclusively, instead of having two stories. I believe in fdn., Italian bees, dollar queens, and GLEANINGS. R. C. TAYLOR.

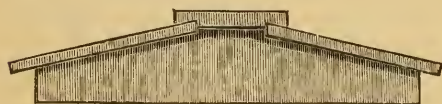
P. S.—I am fast becoming a convert of friend Townley's. I "believe" in chaff packing, even in this climate! R. C. T.

Wilmington, N. C., Nov. 10, 1879.

One is impressed with the idea that you will soon get to be a believer in a good many things, friend T. Thanks for your kind words. Here is another friend who has some good ideas on covers.

COVERS TO 1½ STORY HIVES; STILL MORE ABOUT THEM.

If you will construct the covers to your hives like the sketch shown below, I think you will have no trouble with leaking roofs.



END OF COVER. PITCH, 3 IN. IN 10 IN.



END PIECE FOR COVER.

HOW TO MAKE A COVER THAT CAN'T LEAK.

The trouble with yours is (beg pardon), you have no way of fastening the side covers to the ridge board, and it is a fact that lumber cannot be so well seasoned that it will not draw to some extent, when exposed to the weather. As soon as your side covers draw enough to break the paint, just so soon the storm will commence to beat in. In this cover, a rabbet is cut on each lower corner of the ridge board, with a pitch to accommodate the sides, and wide enough to admit a lap of ¼ of an inch. The joint should be painted when put together, and the sides permanently locked to the ridge board, by means of screws driven from beneath so that no portion of them is exposed to the weather. I have not used these covers long enough to give them a thorough test, but so far they do nicely. I have not designed this for publication but simply endeavor to aid in producing for the public, a roof proof against storm, and cheaper than tin. D. B. BAKER.

Rollersville, O., Nov. 11, 1879.

DRY FUEL FOR SMOKERS, AND HOW TO MAKE A COLD-BLAST SMOKER BURN EVEN DAMP FUEL.

I have ordered several Simplicity smokers for neighbors and friends, though I furnished the smokers at your prices to me, paying postage myself. I have been anxious the goods should give satisfaction. The following complaints of the cold-blast smoker have been made: After the fuel was partly consumed, what remained would shake about and the fire go out; the fuel back of the tube would not burn; the tube fills with soot, etc. Now, complaints, no doubt, are the result of imperfect fuel. I find the rotten wood must be entirely free from moisture

to work well. Who of us has not almost lost patience to find, after the smoker is filled and we ready for business, that our fuel has gathered dampness by lying? A brother for whom I ordered a smoker last spring, declared he would not "bother with that smoker another time." I asked to be allowed to try his smoker. Smoker and wood were brought. He said the wood was "perfectly dry," and so it seemed; but experience had taught me that it is best first to put wood into the oven, and when I lit the smoker he fairly laughed with delight.

Now, friend Root, some will be "careless," notwithstanding the dry wood and printed instructions that accompany each smoker. So I began to think what could be done. I took an awl, and made 2 small holes in the tube, close to the bottom of the cup, nearly opposite the draft hole. I find it obviates all the above-named difficulties, and works splendidly, even if the wood is somewhat damp. The small holes keep the fire alive by blowing in a little air, and yet not enough to perceptibly affect the cold blast. With very dry wood, the draft can be very nearly, if not quite, closed. All I order hereafter I shall certainly fix, if not already fixed.

L. D. WORTH.

Reading Centre, Schnyler Co., N. Y., Nov. 12, 1879.

Many thanks, friend W. Your idea is not new, and I some time ago decided I did not want such a hole, for direct draft; but since so many will not have their fuel dry, I presume we would best make our smokers with very small holes in the center tube, as you suggest. Our friends will have to see that these holes do not get clogged with soot and ashes.

One day later.—I have had a nice machine made to prick two small holes in all the cold blast tubes. The girl who puts the smokers together finished up one of these nicely, and brought it to me. Surely enough, it worked splendidly—filled the room full of smoke, and made everything "red hot," almost, in no time. But there are two serious objections; one is, that it draws smoke back into the bellows, through these small holes. The quantity is small, it is true, but I am sure we do not want a particle of smoke to get into the bellows under any circumstances. The other is, that such a blast of flame blown right against the side of the cup solders the door fast. Said the girl,

"Mr. Root, I do not see how anybody can ever complain about not smoke enough with any smoker we have sent out in the past 6 months," and after trying them, I confess I feel the same way. With any one of them I can "smoke your eyes out" when you are 10 feet distant. However, we will prick holes in the blast tube, for all who want them so.

WANTED, A SPIRIT LEVEL, PLUMB, AND COMPASS COMBINED, FOR FIXING UP HIVES.

Friend Notice:—There is an implement I feel in need of, and perhaps some of the rest of the fraternity may be like me; that is, a spirit level that will go into the Simplicity hive and rest on the rabbets. Then we can level our hives exactly, which is very important. Have it fixed so we can plumb our trellis posts, and have a compass set in the side so we can set our hives all just right. The size of it you can proportion according to the length. I leave it for your decision.

ITALIANS VERSUS BLACKS.

My Italian queen I bought of you, the 15th of June, has now enough provision for winter, and some to spare, and the hive is chuck full of golden bees, while the black swarm, which I hived the same day I received the Italian queen, has not half as much honey, or bees either. The queen had three combs to commence with, while the swarm had one comb, a peck of bees, and frames filled with fdn. With the same chances, the Italian will more than double the blacks. C. M. REED.

Poahontas, Hardeman Co., Tenn., Oct. 16, 1879.

INTRODUCING A QUEEN WITH HER ESCORT BEES.

I once wrote to you, saying that bees would sometimes kill a queen in consequence of the accompanying bees being put into the hive with her, when introducing (see page 11, GLEANINGS of 1878). You then stated that, if further experiments verified the fact, you would put it into the A. B. C. Since then, a number of bee-keepers have testified to the fact, and, if I am not mistaken, you are one of them. This summer, I got an imported queen from Dadant, just as she came from Italy. I felt that it would be cruel to drive the poor bees out into the cold world without a home to go to, so I tried to introduce them with the queen. I lost queen, bees, and all. Now put it into the book. You need not mind about giving me credit, as I am not working for glory. I condole myself for my losses with the thought that others will profit by my experience.

Unionville, Pa., Nov. 12, 1879. G. B. REPLEGUE.

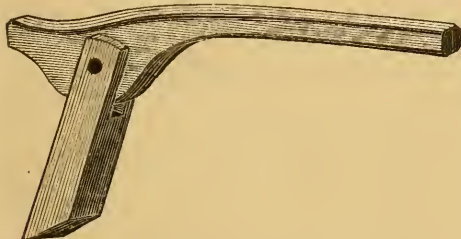
Thanks, friend R. The matter shall be put into the A. B. C. at once, and you shall have the credit too.

GRAPE-SUGAR CANDY.

I have made up the barrel of sugar into your new bee feed, and think it is the boss feed. I am feeding 60 stands. Many thanks for your discovery. We had no honey here this fall; the weather was too dry, and the flowers gave but very little nectar.

UPPER STORIES, BALDWIN'S DEVICE FOR REMOVING.

I send you a small model of my invention, for lifting off the upper story of the Simplicity hive.



MACHINE TO LOOSEN THE UPPER STORIES, WHEN FILLED WITH HONEY.

You put the lower end of the brace in the lower hand hold, and the end of the lever in the upper hand hold, and bear down lightly, and you have it all loose; take off the upper story, turn it upside down, lift right up, and you have the broad frames all clear without any trouble. Make the lifter out of half-inch, hard wood. I use one made out of walnut. If you think it is a good thing, give it to all bee men. I would not do without one for one hundred dollars.

W. M. BALDWIN AND BROTHER.

Mattoon, Ill., Nov. 8, 1879.

Many thanks, friend B. I have practiced lifting off the upper story as you advise, but they are so heavy to lift, that I rather prefer lifting off the broad frames one by one. Besides, when we raise the upper story, if there are metal-cornered frames below they are raised up with it, or at least go up part way, and then come down with a crash; however, this may be prevented by raising it slightly, and then, with a screw-driver or similar tool, pressing down into its place each brood frame that comes up.

SUGGESTION IN REGARD TO MAKING SECTIONS BY FOOT-POWER SAWS.

As it is getting near the time to prepare supplies for next season, I have a word to say to those having foot-power saws, giving my plan for making section-boxes. First, plane your timber on both sides; then rip it up into strips 12 x 2 inches wide; next, saw your strips into lengths of 4 1/4 inches (if that is the size you wish your section-boxes). Now take a board of suitable size (say 10 x 18 inches), nail a straight-edged strip on the side nearest you, and one across the left end at an exact right angle to the first strip. Prepare some glue, and have a brush that will cover two inches. Have your blocks and glue-pot in front of you, just beyond your board.

Take a block in your left hand, dip your brush in the glue, and pass it over one face of the block; now place it in the angle made by the strips on your board, edge up, end toward you, and glued side toward your right hand. Glue another and place against the first in the same position. Proceed with other pieces until you have a block as long as will pass between the saw and pulley. Set it away and proceed as before until you have the blocks all glued together; in a few hours they will be ready for the dovetailing table. The advantages of this plan are: First, you save all the scraps of lumber. Second, there is no outlay for, nor fussing with, clamps that are needed for no other purpose in making hives. Third, sawing short stuff on a foot-power saw is not nearly as fatiguing; and gluing the blocks together obviates the necessity of having your hands so near the saw, and of handling so many pieces when sawing up into sections.

CHAS. E. MCKAY.
Canon City, Colorado, Nov. 10, 1879.

FEEDING BEES POTATOES, PHOTOGRAPH OF THE APIARY, ETC.

I must have some seed of those spider plants. I have been working with bees ever since I was old enough to do anything (though I am only 19 now), and, according to your description, I have never seen any thing that would half way equal it. Please accept thanks for the picture of your apiary given in Nov. number of GLEANINGS; it is worth twice the price of GLEANINGS. I will take my oil paints, and make a chromo out of it. I have been feeding my bees on a candy made of potatoes, flour, and sugar; about one-fourth potato and flour. Do you think it would be likely to do them any harm? They seem to be doing well on it; those that have been fed with it are still raising brood, while the others are not.

CHAS. E. KINGSLEY.
Greenville, Green Co., Tenn., Nov. 13, '79.

I do not fear the flour, but, without having given the potatoes a trial, I should be somewhat afraid they might give them the dysentery. Any food that will start healthy brood rearing will at least answer for warm weather. I am glad to know that you are pleased with the picture of the apiary. I am just this minute paying the bill to the engraver, which was \$75.00, besides nearly \$5.00 more to the photographer, for the photographs to assist the engraver.

BADGES FOR BEE-KEEPERS, AND WIRE CLOTH FOR BEE VEILS.

Have you done anything in the way of making that queen-bee pin suggested to you by J. H. M., Jan. No., page 26? In the A. B. C. under veils, you speak of taking steps to have a cloth made of fine wire with large meshes. Have you succeeded in making such a cloth?

L. HEINE.
Smithville South, Queens Co., N. Y., Nov. 12, 1879.

I don't believe, friend H., that many of us have got any money for pins just now; but friend Kellogg has sent me a sample of a pretty blue-ribbon badge, with a queen bee on it, in bronze. Read what he says about it.

Dear Novice:—Inclosed please find one of our Western Illinois Bee-keepers' Society's badges. I would have sent sooner, but I have only just received GLEANINGS from home. I hope we shall see something "neat and pretty" come of it. They were made by Thos. G. Newman & Son, of the A. B. J.

WILL M. KELLOGG.

Now, we will get up as pretty a badge as we can, of silk, with a bronze queen, and motto on it, and one of them will be sent to every subscriber who sends us \$1.00 for GLEANINGS before Jan. 1st. If you want them for conventions, the price will be 5 c. each, or 50 c. per dozen.

In regard to the wire cloth for bee veils: we stopped our investigations, after receiving the following from friend Balbridge:

Some use a bat made of wire cloth, but that is very bad for the eyes. I nearly ruined my eyes by its use some twenty years ago.

M. M. BALBRIDGE.
St. Charles, Ill.

BUCKWHEAT, AND HOW IT DOES IN GEORGIA, ETC.

Bees have done remarkably well here this season. Our honey plants begin to open about the first of April, and continue till the first of October. My last sowing of buckwheat is just now in full bloom. I have used various kinds of honey plants, but none give as much satisfaction as buckwheat. We have, I might say, thousands of wild flowers that yield an abundance of very fine honey, but we find that they do better in their wild state.

SENDING ME HIVES TO TRY.

I am using the Honey Creek (sweet name) patent bee hive (don't get mad, brother Root), invented and patented by myself. I want you to use one of them—just one. I will make and send you one if you will use it.

I am glad to hear that buckwheat does so well in the South. I am also much obliged, friend H., for your offer to send me a hive; but as the principles embodied are most likely those I have already gone over in my experiments, your better way will be to give me a brief description of it with a simple sketch. Many hives have been sent me, covering ground I am already quite familiar with, and it was therefore a needless expense to both myself and friends, when a pencil sketch would have answered as well.

I send you herewith a plant from which the bees gather a great deal of pollen. I can't find any one who knows the name of it. It is a wild plant, but a very valuable one at this season of the year.

The plant is the common golden rod, of the variety called *Solidago Canadensis*.

FEEDING BEES SORGHUM.

We have but very few bee-keepers in this state. A great many have tried bee-keeping, but failed. They generally knock the poor little bee in the head with their honey-knives. Some people are very much like one of my neighbors, who thinks that a bee can actually make honey out of almost anything. So much impressed was he with this idea, that he fed his bees very largely on sorghum syrup in the fall. He gave them all they would carry into their hives. They filled up every available place with it. The following spring they were still heavy with what he supposed to be fine honey manufactured from sorghum; but, "great spoons!" when he cut it out it was sorghum still!

It seems from your remarks, that sorghum is a safe winter food with you. Had your experiment been tried here, it would not only have been a failure in making honey, but it would most likely have killed the bees too.

A NEW KIND OF SORGHUM.

A neighbor of ours has a new kind of sorghum, received from the government at Washington, that ripens its seed perfectly in September; and from it he has made sugar that grains, without any process or machinery. Now, sugar that will grain will be safe to feed bees, without any question; and the amount of sugar contained in the stalks is so great that our friend thinks he could raise twenty barrels of sugar to the acre. I guess this is pretty high, but as I twisted one of the stalks and tasted the juice, I told him I thought likely it would prove the most successful rival to my spider flower. If you want a little of the seed to try, mention it when you are renewing your subscription, and we will send you some.

I have about 60 stands of bees. I realized from one stand last year, 192 pounds of fine rich honey. I find bee-keeping a very profitable and pleasant business, and expect to devote my whole time to it after this year. I have kept bees for thirty years; but a bee, like a flea, is hard to find out. I think that I know something about them, and I am certain that

there is a great deal that I do not know about them. My bees are as gentle as flies. My little grand-baby crawls on top of the hives, but never gets a sting. I think that any one can "gentle" their bees who will not work with them too rapidly.

JOSEPH HOLLINGSWORTH.

Conyers, Ga., Sept. 25, 1879.

REPORT FROM AN A B C SCHOLAR.

Two years ago this fall, I decided to go into bee culture, and subscribed for GLEANINGS Oct. 1st, 1877. In the course of the fall and winter, I bought 2 colonies. In the fall of 1878, I went into winter with 11 colonies, having bought some and traded for some.

OUTDOOR WINTERING COMPARED WITH CELLAR WINTERING.

I packed 5 in straw, out doors, and put 6 in my cellar, thinking that if they died in one place, they perhaps would not in the other. Well, out of the 5 out doors, I saved one, and of the 6 in the cellar, I lost one. So I came through with 6 (which was better than most of my neighbor bee keepers did), 4 strong and 2 weak ones. The 4 strong ones have increased to 13, and given me 337 lb. of surplus honey in 1 lb. sections.

If all winters were like last, friend C., it would probably pay, without question, to put the bees in the cellar; but if all were like the winter before, the opposite would be the rule. Taking our winters as they come, and our bee-keepers as they come, I think chaff hives out-doors the safest advice to give.

From 2 swarms and their increase (which was 4), I have received 230 lb., and have 92 sections with nice comb started for next season. The honey brought me \$30; so I have 6 strong colonies and \$30 in the place of two colonies in the spring.

The 2 light colonies only increased to 3 making 16. I bought 5 in the summer, so I now have 21 colonies, 14 in simplicity and 7 in chaff hives. My best swarm gave me 78 lb. surplus. Two of my new ones gave me 68 and 65 lb. My honey was nearly all clover and basswood, as buckwheat was a failure on account of drouth, and fall flowers were killed by hard frosts early in September.

SECTIONS IN TWO TIERS VERSUS ONE TIER AGAIN.

I think, by using the broad frames and two tiers of sections, I have got nearly double the amount of honey I would have got with the 1½ story hive. I thought, last spring, that after this season I would make my hives 1½ story, and make the chaff hive 1½ inches lower, and use but one tier of sections; but I have changed my mind. I want them just like those I bought of you for pattern.

J. G. CLARK.

Gobleville, Mich., Nov. 10, 1879.

COMB FOUNDATION, WIRE STRENGTHENED.

All that may be said against this valuable article cannot cause me to dispense with it; because I have tried it, and found it good. Last July, I purchased, of friend Root, a 3 lb. box of fdn., and a spool of the fine wire to prevent sagging. I sewed the wire into the frames (the Langstroth) so that each contained seven upright and two diagonal wires. I then proceeded as directed in July GLEANINGS. What do you suppose was the result? Why, in a few days after these frames of fdn. were placed in colonies of bees, they were transformed into frames of beautiful, strong comb, without a particle of sagging, which the queen had visited and filled with eggs. Several of my neighbor bee-keepers, seeing the result, say that they intend to get fdn. next season. Not a frame has sagged to date.

BEE-KEEPING.

This is my first year of bee-keeping, and I like the business exceedingly well. I want to get a colony with an imported queen, and raise queens next season. My object is to have every queen in my apiary (except the imported) a tested daughter of an imported mother. When this shall have been accomplished, if I do not have golden Italians, why, I would like to know why. What do you think of my project, friend Root?

I think your project a good one, and I am very glad to know you have succeeded so well with the wired frames.

MY EXPERIENCE WITH ROBBERS.

Sept. 10th, of the present year, I had my first experience with robbers. About half past one o'clock I walked out into the apiary, and, to my surprise, bees were roaring around two hives, in great numbers. I soon ascertained what they were doing, and proceeded to stop them. I contracted the entrances until they were so narrow that but one bee could pass at a time; but that did not seem to do any good. They would rush in "whether or no." So I closed the entrances entirely, only leaving air holes. They soon left these hives after they were closed; but, bad as ever, attacked another one, which was treated in like manner. So they continued until the sun was sinking in the west. About dusk, I opened the hives, leaving very small entrances. The next morning, they were working busily on the buckwheat, showing no sign of robbing. I thought that I had stopped them "for good." Every thing went all right until about the time when they began the day before. Then they commenced business more lively than ever. The apiary was getting in an uproar fast, and I, almost a fit subject for "Blasted Hopes," was running from hive to hive closing entrances. The third day they commenced again; but each colony seemed to understand that they must fight, if they wished to thrive. Every time a robber tried to enter, he was nabbed by two or three guards. I have not been troubled with robbers since, for which I am thankful indeed. J. P. MOORE.

Morgan Station, Ky., Sept. 30, 1879.

The reason your bees did not rob in the fore part of the day was because the buckwheat yielded enough to keep them busy. In the afternoon, after they had gathered all the buckwheat honey, they had time to take up the robbing again. How much do you suppose, friend M., it would be worth to have just bee pasturage enough, every day in the year when bees could fly, to keep an apiary of 500 colonies occupied so they would not rob? This is what I hope the Simpson and spider plant will do for our own apiary.

SECTIONS PLACED ON THE FRAMES, ETC.

Will you be kind enough to inform me if you find that sections are *much* more conveniently handled when in frames than when simply placed on strips of wood resting on the frames? This has been my plan, and the separators are very troublesome to keep in place when introducing fresh sections and removing them filled. Zinc is cheaper here than tin, so of course I use it.

You will see by back volumes, friend E., that my original plan, which I used two seasons, was to set the sections on the frames as you suggest. Like yourself, I found it an immense amount of labor, compared with 8 sections in a frame, as we use them now. Are you not mistaken in saying zinc is cheaper than the thin tin, which is really the better for separators?

AN AIR SPACE BELOW THE BEES IN WINTER.

Having had previous experience of the very great benefit of an empty space below the combs, in our cold, damp winters, when the lower edges of combs so often get moldy and rotten. I have this year arranged for wintering two hives on this principle: In one, the bees nearly fill the frames in the upper story—the lower story being empty, and the entrance at its lower edge. In the other hive the bees (a smaller stock) are inclosed on five frames (Woodbury) between two double-walled winter-shield frames. The bees occupy the center of the hive. This hive will be placed on an empty hive. This great additional cubic space of air will, I anticipate (from my past experience), preserve the combs from injury by moisture, and be in several respects an advantage to the bees. May I ask you to try a hive or two on this plan—that is, packed with chaff on your most approved winter plan, and placed upon an empty, chaff-packed lower story or empty hive? In the September A. B. J., I see two or three beekeepers remarked, at a convention, that they "wanted better ventilation." By my plan (the entrance being at the bottom, and small), they have this with-

out a draught. Upward ventilation seems so contrary to the instincts of bees, that, with sufficient bottom ventilation, I doubt if bees could not be wintered in a glass box.

It may be that bees could be wintered in a shallow glass jar, if it had a large mouth and an open space below it; but I think it would be poor economy, even then; although it might be far better than to have the bottoms of the combs damp and moldy. An open space below the combs has been tried year after year by box-hive men, with tall hives only half full of combs. With a chaff hive, well filled with bees, we have the bees clustering, during the severest weather, not only against the top and sides, but on the bottom also, keeping it warm and dry all the time, and keeping every particle of frost out so thoroughly that neither dead bees nor dampness are ever found in the hives at all. Is not this a better way, friend E.?

"THINGS NOT WELL UNDERSTOOD."

I want to propose to you an additional column for GLEANINGS, headed, "Things Not Well Understood," or words having a similar signification. It might be started with, "How many pounds of honey or sugar are consumed in the production of a pound of wax?" "How best to winter bees in-doors and out?" The experience of readers requested. "What is the specific gravity of different kinds of honey?" I am glad to see your report of the doings in your own apiary and bee garden. I consider this as one of the most interesting parts of GLEANINGS.

With all my heart; but there are so many things not well understood, will it not embrace the whole journal almost?

SPRING DWINDLING "ACROSS THE WATER."

I had a case of spring dwindling in 1878. The stock only recovered by being fed almost through the summer. It became a strong stock by autumn.

J. W. ELDREDGE.

Earlham Roads, Norwich, England, Oct. 14, 1879.

A PLEA FOR THE GALLUP FRAME.

Noticing in GLEANINGS a sketch of all the principal movable frames now in use, I see you are a little in favor of the Langstroth, and, in your explanation of their origin and the inventors, I see that you think the Gallup frame is not suitable to use in a two-story hive. I have used and handled the Langstroth, Adair, and American, and have in my own apiary the Gallup, and will give you the result of a two-story hive of 15 frames each. I extracted 198 lbs. of nice honey, and took from them one swarm of bees and 73 lbs. of comb honey, in sections from on top of the second story, making a total of 271 lbs. Can any one show a larger result from any other hive of no greater dimensions—each hive being 12 x 20 inside? I have also taken 151 lbs., in one-lb. sections, from a hive holding only 11 frames, and section-crate holding 27 sections. I write this, not to condemn other hives, but to show that bees will carry honey even two feet from the alighting-board, and in large quantities. I should like to hear from some others who have had as good or better results.

B. N. BENNETT.

Springport, Mich., Nov. 2, 1879.

Thanks, friend B. I have no doubt but that good or even large reports can be furnished from any of the frames mentioned, but I still think the advice I gave holds good generally.

QUEENS TO CALIFORNIA, STINGS, &c.

The last queens you sent came in such good order that they seemed able to stand almost anything, and no dead bees with them. One *Legot* nicely introduced and she is laying well. The other, after being accepted for one day and night, was balled. I then gave her to a nucleus which also concluded, after a day, to kill and throw her out of the hive, and went to work to raise another from some black brood I put in. But, to-day, having found a bee tree, we

brought over the bees having plenty of drones with them, and put them with the nucleus, giving them some larvae from the Italian to raise a queen from, and taking the partly made cells away. I am satisfied there is something in getting used to stings, for, six months ago, they were very painful to me; now they are not much worse than an ant bite.

Bakersfield, Cal., Oct. 17, '79. ISAAC B. RUMFORD.

THE BAR OF TIN IN THE WIRED FRAMES.

Your postal is received; also the tin strips for trial in wired combs, which give better satisfaction than anything else I have tried. All six are in frames with fdn. built out, and no holes eaten in the fdn., as when I used wood strips. I put in the tin with the edge out, and one edge nearly even with the wire, which gives perfect cells on that side; on the other side there will be some imperfect cells, and some drone cells at the sides of the tin. It will be too late after this to experiment with any satisfaction this season. I think the strips of tin could be a little narrower and still have the requisite strength, and would give fewer imperfect cells on that side.

C. R. CARLIN.

Shreveport, La., Oct. 17, 1879.

I am glad to get so good a report from the bars of tin. As I have made some decided improvements in making the wired frames since the article on page 254, July No., I will give the following extract from our new price list:



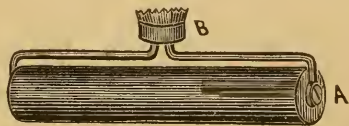
WIRED FRAMES OF FOUNDATION.

These, as you will see from the cut, cannot sag, and the comb cannot break out, in either extremely hot, or extremely cold weather. The fdn. fills the frame completely, and the diagonal wires make it impossible for either the top or bottom bar to sag, even with the greatest weight of honey which a frame may ever contain. Besides all this, the whole frame is made very much lighter than any ordinary frame.

The wire used is No. 30, tinned, iron wire, and about 8 feet are required to a frame. The place of the central wire, is taken by a light, stiff bar of folded tin. To put in the wire, double it in the middle, and start from the bottom of the folded tin strip; carry both ends to the upper outside corners, one to each; then bring the ends of the wire each over on the top bar, and down through the first hole; then under the bottom bar, toward the centre, and up through the top bar again; then down through the bottom bar, and finish by twisting the ends together at the point of starting. The diagonal wires (which were first suggested by L. W. Betts, Milton, Delaware), should be drawn tight enough to make the bottom bar slightly crowning; when the wire is all in, spring in the bar of tin, and you are done.

TO PUT IN THE FDN.

Cut the sheets to just fill the inside of the frame, warm them in the sun, or near a stove, lay them in the frame on the wires, and imbed the wires by running over them the roller shown below.



ROLLER FOR PUTTING FDN. INTO WIRED FRAMES.

No melted wax or other fastening is needed, and your frames of fdn. are ready to hang in the hive, or to ship to customers, as you choose. Price of roller, 20c; by mail, 25c.

PRICES OF THE WIRED FRAMES, PER HUNDRED.

Frames filled with fdn. ready to hang in the hive	\$14 00
Frames without fdn., as shown in the cut....	5 00
The same in the flat, wood pierced for the wires, wire and tin bars included.....	4 00

No. 30, tinned wire, per lb., (enough for 250 frames).....	35
The same, on 1 oz. spools, each, 8c, or 75c per dozen; if sent by mail, add 2c each extra.	
Bars of folded tin, per hundred.....	50

To show the necessity of something to support combs, even after they are built out, in the South at least, I give the following card, received from friend Carlin last June:

My hives are in the shade of trees, with entrances the full width of hives, and $\frac{3}{4}$ inch high. The covers are raised $1\frac{1}{2}$ to 2 inches above the quilt. Fdn. of pure wax, 5 to 6 L. sheets to the pound, worked out in cooler weather, with no apparent sagging, is now filled with honey, and many hives have from one to three combs broken down. They break about three inches below the top bar. *What a success fdn. is, without wire, in this part of the country!* Natural combs do not break down so far, when hives are shaded as mine are. The wired combs look well, and have not broken down.

C. R. CARLIN.

Shreveport, La., June 25, 1879.

QUEEN DEAD AT THE ENTRANCE.

I have but 3 stands of bees and 1 have found one of the queens dead at the mouth of the hive. I don't know but it is too late in the season to ship bees, but, if you think there is a chance of the queen's living to get through, I would like to have it sent.

Sandwich, Ill., Nov. 13, 1879.

G. S. TREAT.

I should be glad to send you the queen, friend T., as we have a large number to spare, but I am quite certain, from the cases I have met of the kind, that the dead queen is an old, discarded one, and that they have got a nice, young one in her place. At this time of the year, when there is no brood, it may trouble you some to find her, but if the stock is a good one, in a normal condition, I am pretty sure she is there.

OUTFIT FOR AN A B C SCHOLAR.

I received A B C, in good order. It has many valuable hints in it for a beginner, I believe. This is as far as I can go, for I know no more about the bee business than a hog does about a holiday. Now I will try to give you an idea of my outfit. I have four colonies; one in an American, one in a Langstroth, one in a Quinby, and one in a Simplicity hive. I got a present of one swarm in a nail keg. This is my variety; I don't believe I want any more in kegs.

LEE WARNER.

P. S.—No relation of that P. O. clerk, Warner.

Allison, Ill., Nov. 13, 1879.

I think, friend W., you should have just one more up in some tall tree top; you could then see the subject on all sides. If you have plenty of time, and money too, that you wish employed in some way, I think you will find your apiary a source of great satisfaction. Should you, on the contrary, wish them to pay their way, without very much time bestowed upon them. I would, by all means, transfer them next spring, during fruit bloom, into one kind of hives.

EXPERIMENTS WITH SECTIONS IN DIFFERENT POSITIONS, ETC.

BEE CULTURE in this part of our state is in the dark ages. We are among men who keep a few box hives of black bees, standing from year to year in the weeds, in fence-corners, or under fruit trees, wherever the swarm happened to light, who never get any honey unless by brimstone, or by prying off the top, cutting down to the cross sticks, and taking out combs which may have been used as brood comb for years. This disgusting stuff, in the comb and strained, is brought to the stores and sold

at any price they can get, demoralizing the honey market, and discouraging legitimate bee-keepers. I went into winter quarters last winter with 9 hives in rather poor condition, and came out last spring with 9 very weak stocks. Fruit-blossoms were a failure, except apple. White clover was a failure on account of drouth. I have increased to 19, and got over 500 lbs. of honey from flat flowers, half in sections and half extracted. Bees commenced storing honey about the middle of August, and continued until October 10th; but September was so cold they worked very little until the last week.

SECTION-BOXES; SHALLOW VERSUS DEEP ONES.

I tried a series of experiments this fall with sections, and find that bees build comb faster with two tiers of sections in a frame than with one, all other things being equal. I use L. frames, with broad frames holding 2 tiers of $4\frac{1}{4} \times 4\frac{1}{4}$ sections, in the top. I made a few sections double length, so that 4 sections just filled a frame, either placed on their sides making two tiers, or stood on end making one tier, to the frame. These I placed on a strong hive, some frames being filled with small sections, others with large sections placed on their sides, and one frame in the center with large sections stood on end. When the small sections, and the large ones placed on the side, were filled, those standing on end were only a little over half full. I tried this on several hives, with the same result. Now for the reason: In two tiers of sections, the bees have two points of suspension to one point in one tier; hence, a given number of bees will build 2 combs 4 inches long sooner than the same number of bees will build a comb 8 inches in length. For the same reason, I think a swarm of bees will build combs more rapidly in L. frames placed as they should be in a hive than standing on end. On taking out the frames, I found only about as many bees at work in the sections standing on end, as in the small sections, proving, I think, that only a certain number of bees can build comb in a given space, from one point of suspension.

HOW TO GET A SWARM OF BEES HOME, "ON A PINCH."

On the 28th day of last June, I found a small swarm of bees hanging on a little willow by the roadside, in a large prairie, about seven miles from home. I could not leave it; so, removing the bottles from my medicine-chest, I hived them in it, and, as the day was hot, I left an air space of about an inch, on one side, between the lid and chest. Taking a thin fly net off my horse, I rolled it around the chest to keep the bees from flying out, put them in the buggy, and brought them home without the loss of a dozen bees. As they were a second swarm, I pinched the young black queen, gave them a yellow stepmother, hived them in a Simplicity hive, and have now an excellent colony of Italians, that has given me considerable surplus honey. Who can beat it? My bees are all Italians and hybrids. Black bees in this section have given very little surplus, while Italians have done well. My two best hives have given me a little over 100 lbs. of section honey each. From those that swarmed I got very little. I had one swarm about the first of September, from which I have taken about 30 lbs. of section honey, 10 lbs. of extracted honey, and they are in good condition for winter.

A. P. COULTER, M. D.

P. S.—Now, friend Root, I did not intend to write such a long article, but somehow got wound up and

had to run down. If you find anything in this fit for publication, use it; if not, throw it into the wastebasket and no offense will be taken.

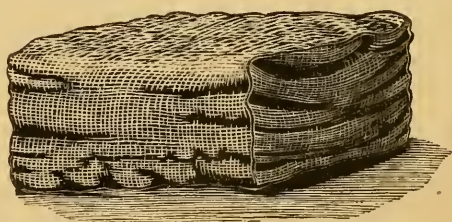
A. P. C.

Marissa, Ill., Oct. 22, 1879.

Thanks, friend C. I am always glad to get reports of just such practical experiments as yours, and I hope you will get "wound up often," if this is the way you "run down." You have, by careful experiments, demonstrated what I have long held, that every strong colony would fill two tiers of sections almost as quickly as one, and that a shallow section, say less than 5 inches, is better economy than deeper ones. I have credited you \$1.00 for the experiment.

CUSHIONS FOR WINTER.

FRIEND TOWNLEY told us last month that loose chaff had given rather better results than chaff cushions. The reason must be, that the Indian head we have been using for our cushions is too close and tight to allow the moisture to pass up through the chaff, as it would if we used a more porous fabric. I have before thought of burlap, but objected to it, because it was so porous as to allow the dust from the chaff to be sifting out constantly. Well, after putting them in use I do not see that this is any great objection after all—especially for out-door hives. Another thing, the burlap works up into cushions without a particle of waste. The figure below will show you how they are made.



CHAFF CUSHION FOR WINTER, MADE OF BURLAP.

As the burlap is just 40 inches wide, we have only to cut off pieces clear across, 20 inches wide. Two of these pieces make a cushion. The way in which they are laid across each other and the seams sewed up will be readily understood from the engraving. But little over a yard is required for a good large cushion; and, counting the bushel of chaff to fill it at 5 cents, we have only 15 cents as the cost of the materials. Allowing 5 cents for making, and we have the cost only 20 cents instead of 30 cents, and we have a larger and better cushion than those made of the Indian head. I need hardly say, you must not put these near the bees or they will eat through in time and let out your chaff. Put an extra sheet of burlap (or, what is more durable, a piece of bag-stuff or duck) over the frames, if you have not the mats we make specially for that purpose. The cushion above is just about right to fill the upper story of the chaff hive; but it can be pressed into an upper story of the Simplicity hives, if you choose to winter bees in the Simplicities. The cushion ready for the chaff will be 15 cents.

Notes and Queries.

EXTRACTING UNSEALED HONEY IN PREPARING BEES FOR WINTER.

BEES have done very poorly in this part of the state, but some better north. I shall get about one third as much as last year, with an increase of 100 per cent. Hives are well stocked with bees, and the brood combs are partly filled with honey not capped over. Should the uncapped honey be extracted for the good of the bees? I have my tenement hives stocked, and report in spring.

N. A. PRUDDEN.

Ann Arbor, Mich., Oct. 23, 1879.

[In our locality, I should not extract the unsealed honey, for the reason that the bees, usually, consume it themselves before we have very severe weather. If they have a large amount of thin, watery, unsealed stores, I do not know but that I would extract it. Will those who have practiced extracting the unsealed honey from a part of their hives, leaving it in another part (if any have done this), please tell us if it seemed to be an advantage.]

QUEENS THAT WON'T RAISE DRONES.

Honey crop has been light. I have gone into winter quarters with 22 colonies in fair condition. I have an Italian queen that would not lay drone eggs at all last season, and I gave her drone comb in the center of brood chamber. J. C. WHITEHEAD.

West Point, Ind., Nov. 3, 1879.

[I do not think it will be at all difficult to find plenty of queens that will not produce drones; but are they as prolific as queens that produce drones in the proper season?]

QUERIES ABOUT CHAFF, CHAFF DIVISION BOARDS, AND CHAFF CUSHIONS.

What thickness should the chaff division boards be? [It is not material; we make them of common lath which brings them about 2 inches thick.]

What thickness is the chaff cushion?

[Six or 8 inches; a foot will do no harm.]

When supers or the double hive are used, would you recommend filling the space above with straw?

[No; chaff cushions.]

Which is the best absorbent of moisture, *wheat straw*, *flax straw*, or *cotton*?

[I prefer *wheat* or *catt* chaff for reasons I have repeatedly given.] W. O. PIERCE.

Winchester, Ind., Aug. 16, 1879.

QUEENS BY MAIL.

It appeared, at Chicago, that sending queens by mail would be a great aid to many. I go to Washington this winter, to effect a change if possible in the decision of the P. M. G. The complaint is, the bees sting agents, and the mails are daubed. Now, I wish to take a cage with candy, and so made, with double shield of wire gauze, as to convince the P. M. G. We would better put no bottle in it.

Please send me your ideal cage for such purpose. A. J. COOK.

Lansing, Mich., Nov. 5, 1879.

[By making the soft candy described in the A B C., we can put up bees so as to stand a week very well, without water. In the cage we have sent friend Cook, we fastened securely, over the wire cloth, a piece of perforated tin, with a 1-4 inch space between the two. There is certainly no difficulty in protecting the mails and the officials from any possible chance of daubs or stings, but I have sent so many cages to Washington, I fear they have other objections to bees in the mails, besides the two named.]

GRAPE VERSUS CANE SUGAR.

If grape sugar contains only $\frac{1}{2}$ the sweetening power of cane sugar, is it really any cheaper for candy than cane sugar and $\frac{1}{4}$ flour?

[The sweetening power of the two sugars hardly decides their value for food, either for man or bees; for instance, corn meal has little or no sweetening

power, but a pound of meal would sustain a man during hard labor, longer than a lb. of sugar. As grape sugar is made from corn, is it not likely it would, to some extent, follow the same rule? It should be borne in mind, that honey is, principally, grape sugar. Since grape sugar has risen to about half the price of cane sugar, we are very much in need of some accurate experiments in regard to the cost of "boarding" bees, when fed on different substances.]

FINE FLOUR VERSUS MIDDLINGS FOR BEES.

Is patent process flour (ground middlings) better or worse than the other for bees?

OLIVER FOSTER.

Mt. Vernon, Linn Co., Iowa, Oct. 31, 1879.

[I do not know about the kind of flour you mention, but I have experimented a great deal with all kinds of substitutes for pollen. When the bees were given little heaps of fine flour and middlings, they invariably chose the fine flour. They also preferred rye and oats ground together, to the wheat flour, and I am just taking steps to substitute this for wheat flour in our bee candy.]

NUMBER OF COLONIES TO BE PUT INTO A WINTERING ROOM.

Honey is so scarce, that my bees hardly pay expenses. I was surprised at some of the advice on wintering: I always supposed that a dry, dark cellar which would keep potatoes would keep bees. Mine have always wintered well, and I have put in from three to sixteen. HANNAH W. WILLIAMS.

Springville, Linn Co., Iowa, Oct. 30, 1879.

[Thanks, friend Hannah, for your correction. The A B C has been changed so as to warn against trying to winter a few stocks in a room above ground, not including cellars. It must have been a fit of absent mindedness, perhaps occasioned by my growing old(?), that caused me to include cellars, I do not know but one colony can be wintered in a dry, frost-proof cellar, as well as more.]

DRONE-LAYING QUEENS.

Do stocks having drone-layers ever destroy their drone brood at the end of the honey season? I have a stock that has been carrying out young drones, nearly matured, for the past week. My business takes me away from home during the day time, or I should have examined and found out the cause.

H. L. LANKTON.

Wethersfield, Ct., Nov. 3, 1879.

[I think it very likely the bees destroy such drone brood in the fall, for I have often wondered what became of it. The worker-bees, knowing their span of life would only be the shorter for keeping these useless consumers, evidently destroyed them as a means of self-preservation. Stocks should be examined often in order to prevent such a state of affairs from ever occurring.]

GOOD REPORT FROM THE SIMPLICITY HIVE.

I made more honey in the Simplicity hive I got from you last April, than with 8 others I had of a different pattern. It is the hive, according to my notion. J. W. PEARMAN.

Nebraska City, Neb., Oct. 29, 1879.

CHAFF HIVES; TRANSFERRING BEES FROM SIMPLICITY INTO THEM, IN THE WINTER.

Should the weather keep open, would you advise transferring from Simplicity hives into chaff hives, as late as Dec.? I could make chaff hives enough to put the rest of my bees in by Dec., and, if we have a broken winter, I am afraid my cellar will be too damp. J. G. CLARK.

Gableville, Van Buren Co., Mich., Nov. 10, 1879.

[Yes, or in any other month in the winter or spring, whenever a day occurs not below 40 degrees. If it is freezing weather, you will have to be careful about bees that get out and get lost; but, as they will soon drop down, you can gather them up and put them back over the cluster, and they will revive all right. With metal cornered frames, we can usually get the frames into the chaff hives before the bees rouse up enough to get scattered; but, if you have to pry each frame loose with a snap, it may be best not to undertake it until you have weather permitting them to fly.]

A GOOD LONG "NOTE AND QUERY."

I am going to ask you a question. (I haven't asked many so far).

SWARMING OUT IN THE FALL.

What was the matter with my friend's bees? Last week, I looked over his bees for him (I mean those which I transferred into Simplicity hives for him). They were all right; at least, I thought so. They had plenty of honey and bees, and good queens. Last Sunday his best hive swarmed out and left while he was away from home. At the time I looked them over, they had a good-looking queen and plenty of brood and eggs, and they left a fine lot of honey and some unhatched brood in the hive. I think this question will "stick" you as it did me; and I do not think any man can answer it, because our season is so unusual.

[That is a rather hard question to answer, friend W., especially if the colony was a good strong one. If a part of the bees remained, to build up another colony, I should call it natural swarming in November; but, if the bees all left, I should call it absconding, such as we have had of late in the spring. I think we shall, for the present, at least, conclude it was on account of the queer warm fall weather, and that the bees imagined it was spring time, and the proper season for cutting up such tricks.]

FRUIT-BLOSSOMS IN THE FALL.

My bees were working on apple and pear bloom today. What do you think of that? This is a fact which makes many a man in this county draw a long face. The long faces include, too, not only bee-raisers, but those who raise fruit and wheat, and with good reason; because, if this weather continues, we will have no fruit, and, consequently, no bloom for the bees in the early spring.

[I, too, have seen bees work on fruit bloom, to a limited extent, in the fall. I do not think it will do any material harm.]

My 32 hives of bees will average 25 lbs. of sealed honey now - enough to last till March if it would only get colder; if it doesn't, I shall have to do some feeding in the spring. My bees cleared me \$15.00 this year, but they are in debt still on last year. I only credit my apiary with the honey *actually sold* (I give more or less away for sickness). I actually sold 400 lbs. of honey from 18 hives, and this has been a very poor year; but from what I was told while visiting the A. B. J. office, in Chicago, last month, I may feel quite hopeful. This is my second year in the business, and I am "green"; but I hope to learn more.

W. J. WILLARD.

Jonesboro, Ill., Nov. 13, 1879.

DOES IT PAY TO FEED THEM?

Bees are all right yet. One of my neighbors has lost some by starvation already; he says he won't feed as they did not do anything for him this last season. I rather guess he will lose most all before spring. I fed all of my blacks as long as I could on account of cold weather.

B. F. PRATT.

Dixon, Ill., Nov. 15, 1879.

[It might satisfy one's feelings a little to let them starve, but it seems to me it will be rather slim satisfaction to find them dead, when the profits of the year come to be footed up. It reminds me of one of our boys who bought several queens to Italianize a black swarm. I heard he gave the swarm away, and asked him why he did not sell it to me. His reply was that, as they wouldn't accept a queen, he did not consider them good for anything to anybody.]

SUBSCRIBERS CHANGING THEIR ADDRESSES.

Please send my monthly GLEANINGS IN BEE CULTURE to Millerton, Tioga Co., Pa., and oblige

FRANK SHEFFER.

Millerton, Pa., Oct. 24, 1879.

[All right, friend S., but how in the world are we to tell where you used to be? We can not afford to send it to two places, and, unless you give us your former address, how are we to get it changed? Our lists are all set up alphabetically by the post-office, you see. In due time comes the following, from which you see his former home was away off in Iowa:]

I received your card. My old post-office address was Charlton, Lucas Co., Iowa. FRANK SHEFFER.

Millerton, Tioga Co., Pa., Nov. 3, 1879.

[Do you not see, friends, how important it is that you mention your old address as well as the new?]

I wintered 10 swarms last winter without any loss and sold 7 of them this last spring, which left me only 3 colonies. Those that I kept for my own use were Italians. From those 3 colonies, I got 149 lbs. of comb honey in section-boxes, and 286 of extracted honey, making, in all, 435 lbs., and increased to 8 colonies. All are in good shape for winter.

C. M. TRUNKLEY.

Vernon, Trumbull Co., O., Nov. 15, 1879.

I am one of your A B C scholars, and have kept bees 4 years. Until last year, I kept them in the old way, but was not satisfied. Last winter, I sent for the GLEANINGS and A B C book, and a new field was opened to me. I have tested your method in part, and am surprised at the result. This has been a good season since April; that month came very near killing all of my bees.

SEVEN COLONIES AND 100 LBS. OF HONEY FROM ONE COLONY, IN ONE SEASON.

One of my neighbors bought a hybrid swarm last spring, paying \$12.00 for it. It increased by natural swarming to 7, and gave over 100 lbs. surplus. How was that for "high-birds"? I think I have got my money back that I paid for the GLEANINGS, a number of times, in good suggestions.

WM. HOYT.

Ripley Mills, Somerset Co., Me., Nov. 11, 1879.

WATERY HONEY FOR WINTER STORES.

I find in my hives some sealed honey that has the appearance of having been dipped in water, and, upon uncapping it, I find it has begun to ferment. Can you tell me the reason and a remedy? Will it do to feed with this honey?

W. S. WARN.

New Smyrna, Fla.

[Were it up here in the North, I should fear it might occasion dysentery, but in your warm climate with no winter, I think it can do no harm. I supposed your bees never died down there, unless it was from starvation; how is it, friend W. If it seems to harm them, lift out the combs containing such stores and feed them sugar syrup or candy.]

NEVER TOO OLD TO LEARN.

I am now 72 years old, and enjoying the best of health. I suppose you think it is time I had my "A B C of Bee Culture."

H. ROWLEY.

Brighton, Ont., Can., Nov. 14, 1879.

BLACK ITALIANS.

My Italian queen that I got of you produces nice shiny black bees.

H. MARDEN.

Manchester, Scott Co., Ill., Nov. 17, 1879.

[Well, I declare! friend M., I have had black-looking queens that produced yellow bees, but I do not know that I ever saw a yellow queen that produced black bees. Do you mean they are all black, all over? If so, I want her back, and you shall have another. What is the reason you don't "scold" any?]

ANOTHER QUEEN WHO ALWAYS KEEPS A LAYING DAUGHTER WITH HER.

Last season, a neighbor purchased a colony of bees and requested me to look at them. I soon discovered two queens, the old one having her wings clipped. The spring, they were still in the hive. The first of May, he removed the old one, and introduced her to a hive of blacks. In June, the last part, she had another queen helping her. He removed her the second time, and she now has help as before. If you want her, please inform me, and I will send her. She will be two years old June next. I can give you all the evidence you want for the correctness of the above.

S. H. LANE.

Whitestown, Ind., Nov. 14, 1879.

[Very much obliged, friend L. Since the one from friend White died, I shall be very glad indeed for her, if you succeed in keeping her over until spring, but I should wish one that is a daughter of an imported queen, if I were going to rear from her largely.]

STILL MORE ABOUT TWO QUEENS IN A HIVE.

I had not less than 3 colonies, in which two queens were working together for some time. For aught I know, two of them are still dual. I attribute it to the peculiarity of the season. I could not see that they prospered any better than others. If they remain in that condition until spring, I shall give them special attention for experiment.

G. B. REFLOGE.

Unionville, Ia., Nov. 21, 1879.

HONEY FROM COTTON BLOOM IN NOVEMBER, ETC.

Keeping bees this year in this part of Texas has been an *up hill* business. Westbrook, the black bee man, with his 75 hives, did not get a pound; Dr. H. B. Ransom from 20 hives, Italians and hybrids, got 40 gallons; and mine, mostly blacks, gave me only 12 lbs., and I will be compelled to feed in Feb. or March. I see to-day the Italians coming in from the cotton fields, heavily loaded with honey. Those Simplicity feeders are just nice; to try one, I filled it with syrup, and in three hours a strong colony had the thing empty, and were crawling about hunting for more.

[But how does your cotton happen to be in blossom at this time of the year, friend C.? Is it a usual thing, or only a freak of our warm fall? We folks up here don't understand it.]

ACCEPTING A QUEEN AND THEN KILLING HER.

Something new to me:—I kept one of the last queens caged three days, and when I went to turn her loose I raised a card of hatching brood partly up, and let her loose on this. Just as soon as she got on the card of comb she went to laying, and continued to lay until I closed the hive. At noon the next day, she was still laying; but, three days after, I found her on the alighting board dead, with a few bees around her. What made them do this? I found a queen cell started over her eggs, and if I only had drones I could duplicate her. I put a black queen in her place.

B. F. CARROLL.

Dresden, Texas, Nov. 12, 1879.

[You will see from another page that I have had some similar experience; I am inclined to think it a feature especially of fall introducing. The queen was introduced so quietly, that it almost looks as if they did not know, for a couple of days, that she was there; but when they noticed she was a stranger, they pounced upon her.]

CHAFF PACKING FOR WINTER; A NOVEL METHOD.

What can you furnish six chaff gums in the flat for? I am rather a beginner in bee culture. I attempted it some years ago, and last fall and spring bought 3 stands with the view of trying it the third time. If I fail this time, the probability is that I shall finally give it over. One of my stands swarmed the first day of July, and, fearing it would die through the winter, I took a large barrel and set the hive into it, and put chaff all around it, and took the board off the cap and made a feeder, and am now feeding syrup of coffee sugar, and put rye flour, in a paper, close by the syrup. This warm weather, they seem to be doing well. They are bringing in some little pollen. Where do they get it now?

BENJ. F. PAYNE.

Bridgeport, Harrison Co., W. Va., Nov. 13, 1879.

Everything that I have had from you this summer has been satisfactory. The \$1. queen is doing very well, and breeds pure Italian bees. The smoker is tip top, and the story and a half hives are also satisfactory. The bees in this neighborhood did but very little this summer. I have fed a June swarm already about 10 lbs. of sugar, and I don't think it has enough yet to keep it over winter. I think your A B C book is what every man ought to have, that wants to keep bees. I am an A B C scholar.

S. YINGS.

Leechburg, Armstrong Co., Pa., Nov. 10, 1879.

WINTER PASSAGES.

How would it work to cut winter passages in fdn. before giving it to the bees? I did not think of it in time to try it this season. Bees have done but little in boxes this year, but swarmed well.

HORACE LIBBY.

Lewiston, Maine, Nov. 18, 1879.

[They would be almost sure to fill them up. I have frequently used fdn. with holes in it, but the bees would have the sheet all entire, when it was built out. If a hole is made in a finished comb, they are very apt to leave it large enough for a bee to pass.]

Bees around here are strong in numbers, but short of stores. Some have already starved. I have doubled down from 23 to 20 stocks, to fix for winter. I commenced in spring with 14 stocks, and have taken 820 lbs. of honey, 100 of it comb in sections, which sold readily at 15c. The extracted sold at 10c

in 50 lb. lots, or 12½c at retail. Sold all at home, and could not supply the demand.

W. C. HUTCHINSON.

Acton, Marion Co., Ind., Nov. 11, 1879.

TO BE SURE THEY OUGHT TO BE "CONTENTED."

I would like a Simplicity feeder for the enclosed. I want to see if it can not be used for giving the bees water before they are able to leave the hive. We cover the brood frames with two or three thicknesses of old wool carpeting, and find it very convenient. Last spring, we put boxes of Graham flour underneath, on top of the frames, and the bees used it gladly. A piece of candy, a dish of water, and a box of flour, with the prospect of soon being able to fly in the air and sting somebody, ought to content them through the month of March. MARY SIMONS.

Brocton, Chaut. Co., N. Y., Nov. 17, 1879.

DRONES AND WORKER CELLS.

I had Italian drones hatching in one hive this week, from cells 5 to the inch. Most of the others quit laying drone eggs last month. Last year, but few drone eggs were laid in the latter part of summer, for the reason that honey was very scarce. Very few black queens laid drone eggs this season, in worker comb.

C. R. CARLIN.

Shreveport, La., Nov. 8, 1879.

PIOUS PEOPLE WHO DO NOT PAY THEIR DEBTS.

Mr. Alley writes:

I wish some of those pious people who read your paper would pay me what they owe me, I might be able to pay my bills more promptly. H. ALLEY.

Wenham, Mass., Nov. 20, 1879.

Now, friend Alley, just give us the names of those people, and they shall be published forthwith. Will such please take warning. If anybody needs showing up, it is those who claim to be Christians and do not live up to their professions. If it makes more of a crash than GLEANINGS can stand, down let it go.

DRONES, NO ATTENTION TO BE PAID TO THEIR MARKINGS.

I have a drone with the characteristic markings on four of his abdominal rings; if you wish, I will send him on. I have refused an X for his mother (from an old bee-keeper who is "up to snuff.")

C. LOVER.

Reisterstown, Md., Nov. 10, 1879.

It is comparatively a common thing to find drones with 4 yellow bands, friend L., but I believe general opinion has agreed that no dependence can be placed on the drone markings. Had you worker bees with 4 bands, they would certainly be a curiosity; but I am not sure they would be of any more value than the others. If we could get some drones that would get honey from the red clover in the fall, when worker bees don't get any, I would bid high for their mothers. It is the *honey*, I am after, you see.

THE SAD FATE OF THE QUEEN THAT ALWAYS HAD A GOOD LOOKING DAUGHTER IN HER HIVE TO SPARE.

My offer of \$10.00 to friend White (see p. 441 last month) turned out badly. The accompanying bees, of which there were a good many, were in nice order, but the queen was dead without any reason so far as we could see. It was bad luck for both of us, for thus goes the only queen in the world, that will keep raising a young queen, right by her side, in the hive. Perhaps I would better say it is the only one in the world that I know of.

The contents of this leaf and the one following are not directly connected with the subject of bee-culture. On this account, I make no charge for them, and, if you choose, you can cut them out without reading.

Our Homes.

In all thy ways acknowledge him and he shall direct thy paths.—Prov. III. 6.

I HAVE mentioned before the great numbers of applications I have always had for something to do. After the events narrated in my last chapter, for some reason which I can hardly explain, the number of applications was, all at once, greatly increased. Not only that, but those who applied to me seemed more free to tell me of their needs, and why they were so very anxious for something to do. A great many offered to work for 50c. a day, and I knew, if I gave them work, this amount would go for the very necessities of life. In my anxiety to help those who needed help, I set one after another at work, until I had over eighty, children and all, in my employ. As it was my wish, or perhaps you might say, one of my pet projects, to employ everybody who asked for employment,—good, bad, and indifferent, with the hope of doing them good, I soon had, in some respects, a motley crew about me. Now, I do not want to complain, for every one of these eighty were so willing to do all that I asked them to do, that it sometimes touched my heart to see them so ready and willing.

Boys that were so much in the habit of swearing that it came as naturally as to draw a breath, stopped right off, when I told them my wishes, and, provided I could furnish them the wished for employment, nothing more seemed required but to make known clearly to them, my wishes in regard to morals, etc. To keep a supervision untriflingly, over so many, was no small task, I can tell you, let alone the spiritual work I was intent upon doing; and were it not for many little texts like the one at the head of this, to enable me to cast all my trials upon my Savior, I should have become demoralized, and broken down in short metre.

You see, the amount of talking that needed to be done was immense; and that I might be spared the trouble of saying so many things over and over again, I did once or twice call a meeting of the hands, and told them of the things we needed to do that we might prosper temporally as well as spiritually. There were difficulties in the way of all this, such as getting them all together, unless I paid them for their time, etc. They were all very pleasant and good-natured, and I presume would just as soon be scolded an hour every day as not, if I did it pleasantly and paid them for their time; but if these talks lasted an hour, it cost me about five dollars. and I felt as if I could hardly afford that either. Finally, I be-thought me of my large printing-press as a medium of talking to my hands (in the same way I talk to you, my friends), and I wrote the articles headed, "Work and Wages," in the January and February numbers. The

proof-reader suggested that they were good enough to put into GLEANINGS, and so they were used, as you have seen, with some alterations. The articles did good, of which I had abundant evidence; but the good was, perhaps, mostly far away, for the hands knew me so well they thought I must mean it for some one else, I suppose.

Well, when I thought of the needy ones around me who would make a good use of the money, contrasted with those who used their money to ride about on the Sabbath, smoking, chewing, etc., my conscience began to suggest that the business God had given me was hardly being used for the furtherance of his honor and glory. I have before spoken of the obscenity and profanity that I found written on the out-buildings. Tobacco-juice and "quids" greeted me more frequently than usual, and a tobacco store was just started in our town, which my business seemed very likely, at least, to help materially in supporting. The windows of my new buildings were broken almost daily, but it was as impossible to tell who did it as to tell who persistently defied me in the obscene writing. Boys who promised me so fairly to go to Sunday-school and church (proposing it themselves, if I would give them work), had apparently forgotten all about it, and the more money they earned the more they broke the Sabbath. I was told that one of my small boys said he did not smoke while going to school, because he had no money with which to buy cigars, but that as soon as he went to work for me again and got some more money, he was going to smoke again. Several others of my young boys, and some who had always been to Sabbath-school, took their money Saturday nights and bought a kind of cheap cigar called cigarettes, I believe, and in that way learned to use tobacco. One young man who lived a little out in the country, taught all the boys of a country school how to use tobacco, and he himself learned how while working for me. All this time were widows and poor girls in our town, who wanted work that they might get, honestly and independently, the necessities of life. There were also young men, at least a few of them, who were anxious to get money to enable them to get an education. It was in my power to throw this money in whichever direction I should choose. Whom should I employ?

If I should decide to take only those who made a good use of their money, I should lose all hold upon and power over the worse class, which I had been helping very materially, at least. Perhaps if I told them just what I wanted, they would alter their habits and ways. It would certainly be no more than fair that I should tell them what I desired, and give them a chance with the rest. By talking with them, many of them did do better.

Now you must not get an idea that it was the boys only of my establishment who needed reforming in their morals. Our town, like many another, has a large dancing hall, and some of our most respectable men and women—I guess there is no mistake about this assertion, is there?—some of our most

respectable people attend and encourage the dancing club. Where is the fault with it, then? Well, it is because, in that dancing hall and club, there will almost always be found as well, quite another class; and most of all, because our reformed boys will, a great many of them, keep sober and steady until the next dance comes off, and then down, down, down, they go again, until they are lost hopelessly. A leading physician was one night poking around in the dark in a stairway, and when I asked him what he was up to, he said he was trying to make his drug store cellar so secure, *if it were a possible thing*, that his boy and a lot of others, should not get into it every night when they had a dance, and get on a drunken spree. A young lady who had once been a professor of religion commenced going to dances, and soon ceased taking her place among the church people as a member. While she was one among those who attended the dances, I heard her say that, the next day after every dance, she always felt she was a step lower in her own estimation, than she had been the day before; that never was her own opinion of herself so poor, as on the day after a dance. I know there is plenty to be said on the other side, but, for all that, through all my life, the fruit I have seen of dances has been uniformly bad fruit, when there was any fruit at all.

I need not enlarge on other points, such as billiards, card playing, etc.; suffice it to say, I felt, and feel yet, that God calls on me to use the power he has given me of setting people at work, in such a way as to throw the money as far as possible where it will do most good. With these thoughts in view, I had the little paper that I gave you on page 154, of the April No., printed and given to the hands. At the bottom of it, I stated as I thought clearly, that I wished to know how many of my hands would aid me in the matter, by signing their name to the paper. As it did not touch the greater proportion of them at all, I confidently expected to get the greater part of their names. I had no intention of getting any body to sign it, unless they would do it of their own free will; certainly not, by threatening to expel them, for that is something almost unknown in our establishment. The papers were handed them Saturday night, with their week's wages.

Monday morning, I found a great part of them standing idly around the time clerk's office, and I had my first experience of any thing approaching a strike. There are two sides to all questions, and while it was my privilege to turn off all hands whose morals did not conform to my convictions, it was their privilege to stop all at once, in the height of the season, and leave me without a single skilled hand to wield the pens, and run the machinery. I was asked by a spokesman, to go with them to the sample room, and hear their side of the case. Of course, I went willingly, and of course, I withdrew the offensive paper, if it could be called withdrawing, for I had never demanded that any body should sign it.

I had prayed earnestly over the matter, and I felt that as God was with me, I should

certainly be guided aright in the matter. So I was; but, do you remember what Moses said, after he smote the rock for the children of Israel?

"Hear now, ye rebels; must we fetch you water out of this rock?"—Numbers, XX. 10.

Well, after it was all settled, and they were ready to go back to their work, I held up my Bible which I had taken in my hand, and said that, with God's help, this establishment would yet be conducted under those rules. My friends, it was right for me to think that, and to resolve in my own mind that, with God's help, it should be so; but there was no necessity for my saying it. I yielded to the temptation to show my power, and my speech was a little bit of a threat. One who trusts God, does not always know exactly what he is going to do, and there is no particular necessity of telling long before hand what you are going to do: doing a thing quietly, at such a time, is sufficient, usually. Pretty soon, it was evident that there was dissatisfaction still. They had got the "swarming fever," and there must be some more swarming before they would settle down peaceably to work.

"Mr. Root, we want you to promise you will never bring that paper up again."

I pleasantly remonstrated, and told them I should be yielding up my liberty in managing my business on moral principles, did I do so. They would not go to work otherwise. I finally promised to drop the matter for three months, that we might all have time to look it over; but I had given way to them once, and they were determined I should again. I am not blaming them, for they were very likely doing very much as I should have done, had I been in their place. It illustrates how much we are swayed, at such times, by those about us. The matter was probably started by a few, and the rest fell in with the current, and finally little boys followed along, and gave up their places, when the rules and regulations did not touch them in any way in the world, and when they really did not know what they were leaving for, as it seemed to me. Thirty-five had signed the paper and were at work; but as the rest stayed around and talked with them, even they caught the infection. I asked them to go to work without signing the paper, and let it drop, but they were not satisfied. The next morning things bid fair to right themselves, but another incident upset it all; "All things work together for good to those that love the Lord," the Bible says, and I prayed to be guided then, and trusted him, and made up my mind I should not yield any further, if it took every hand I had. Mr. Gray came upstairs and told me my hands were all leaving, even to the children.

"Let them go," said I. Here I was in danger of swinging over to the opposite extreme again—of too much independence. Mr. Gray felt it and replied,

"I tell you, Mr. Root, if you do not go down and counteract that spirit that is getting hold of them, you will not have a hand left."

I went down and spoke mildly, but told them that all who did not go back to their

places before the morrow would be treated as new comers, and all new comers, hereafter, must subscribe to those rules. If they would go back to-day, the matter should be dropped. They assented that I had never been severe, and that I had almost never dismissed a hand, even for the worst behavior, yet they decided to leave, and, as they wended their way out of the factory, I went up into the deserted rooms, and prayed for them as I seldom pray. I prayed that God would, for their own sakes, show them their error and touch their hearts, since I was powerless. I felt satisfied and comforted, and, lo! while I prayed I heard footsteps on the stairway. I arose and looked out of the window, and the current had changed, and they were thronging back. Was I dreaming?

"Mr. Root, if you will forgive me this time, I will go to work without any more foolishness," said one of my best hands, and one whom I had felt pained about almost more than about any of the rest.

I can not begin to tell you how I thanked God, and how good it seemed to have the busy hum of business commence again. Even now, when I look at them all over the rooms, and see the work going on, I think of that morning when I had not a trained hand left, as it seemed. Did God answer that prayer by a miracle? It was a miracle to me, but it all came about through human agencies, as I will explain.

Perhaps a half-hour before, my former partner came to her work, and, seeing the state of affairs, came to me and asked if I would waive those rules if the hands would all consent to come up-stairs to a service of singing, Bible-reading, and prayer, for ten minutes every noon.

"Why, I have waived the rules already; and should I mention Bible-reading and prayer, they would object more vehemently than they have yet!"

"They will come if I ask them;" and, as she went off with her pencil and paper, I had so little faith in such a crazy idea, that I absolutely forgot all about it. I could not see God's hand in it then, but I see it all now. She who, above all others, had reason to feel persecuted, was just the one to change the current of affairs. How could the most defiant of them refuse her request? and such an unheard-of request! She was not a professor, any more than the greater part of them, and the idea was fallen in with, almost without exception. I had tried in vain to get them to come to the Bible-class Sunday mornings. Of the whole eighty, I had seldom more than a dozen. At noon they all came up, from the engineer to the smallest boy, and there was I, through no planning of my own, desired to read and pray with them. I felt myself a child in God's hands, and it seemed as if he had chosen these boys and girls to point out to me my path, when I had been trying to point out to them their path.

I presume we all felt that God was leading us; and when some one suggested the little hymn below, with one accord nearly every one joined in.

"Sweet hour of prayer! sweet hour of prayer!
That calls me from a world of care,

And bids me at my Father's throne
Make all my wants and wishes known:
In seasons of distress and grief,
My soul has often found relief;
And oft escaped the tempter's snare,
By thy return, sweet hour of prayer!"

Was ever anything so appropriate? If the family, gathered then and there, did not know what "a world of care" meant, who did? "In seasons of distress and grief", put in *misunderstanding*, and it was our case exactly. "Relief?" if it was not a blessed relief to more than one heart just then, I don't know anything about it.

If I remember rightly, I read the xxiii Psalm, and then I tried to pray. When I thought of praying for them it seemed more as if I ought to pray for myself; and when I had asked God to help me to be more worthy of the place he had given me, and to give more wisdom to safely guide so many, I broke down and cried, and I can't tell how many of the rest cried, for I dared not look up. The engraver came up and took my hand, and said he had been terribly troubled about the position I was taking, but he had got all over being troubled now, for he was sure I was on the right track, and he would stand by me as long as I wanted him.

"Uncle Nat", an old gray-headed man, came up and said he feared God was not with me before, but that he had no doubt of it now at all; and the rest looked as happy, as they wiped away their tears, as you might expect a large family of brothers and sisters to do, after coming out of a shipwreck and finding every one of them was saved. It was a shipwreck, truly, but it was one that will bind us together, perhaps more securely than anything else that could have possibly happened.

For a time, the hour of exercises was at my own expense; but somebody figured up that the ten minutes was costing me a dollar each day, and then without my having anything to do with it, the hands offered a resolution that each one should bear his own share of it, and the hands should give their time. This was passed, and also a resolution that the hands should all try to conform to my rules and regulations as far as they could, even if they did not sign them. Now, my hearers, you are just in a position to comprehend the wonderful beauty and power of the little text I have so often quoted of late, just look!

"IT IS NOT BY MIGHT, NOR BY POWER, BUT BY MY SPIRIT, SAITH THE LORD OF HOSTS."

This was not all, either. We sometimes had trouble in our singing; especially when we tried unfamiliar pieces. As all wanted to sing, and many felt the need of something to pitch our tunes, and something we could rally round, as it were, a project was started among the hands to purchase an organ for our noonday devotions; and before I hardly knew it each hand was going to give one day's work for the organ. This idea, too, was suggested by one not a professor, if I am correct, and one who had been rather the leader in the "strike". One of the hands wrote to inquire about organs, and when the manufacturers knew something of the circumstances, they agreed to take more than

half of the price of an instrument in advertising. The organ is now in use every day; and as the engine stops at just ten minutes of noon, the organ calls all hands around it, myself included. Do you wonder that I sometimes look on as though I were but a passenger too, and that God was managing this business. Do not the events seem to say,

"My child, you have shown your zeal in trying to do my will, but now I wish you to stand aside and let me take care of these boys and girls a little, and show you that your prayers have not been in vain."

Suppose I had been stubborn and domineering, and imagined it was my duty to go ahead, since I had once started, even if I did smash up my business.

Ye shall not need to fight in this battle; set yourselves, stand ye still, and see the salvation of the Lord with you, O Judah and Jerusalem: fear not, nor be dismayed; tomorrow go out against them: for the Lord will be with you.—II Chronicles, xx. 17.

To show you the effect of this service on all of us, even the "strangers" that may be "within our gates", I will mention the following incident:

When we lost so many letters by the mail depredations, one of the government detectives frequently called on me. He had a few bee hives, and, on that account, he could go around among the hands and take a look at the clerks, for the evidence pointed out that the guilty one was very near Medina, if not in Medina, and possible among my own clerks. He watched the boy who went to the office daily with his basket, and the clerk who opened the letters, etc. When I suggested that this or that one was an earnest Christian, he did not seem to think that made a great deal of difference; and after we had had some talk in the matter, he finally said that he found the thieves among all classes, even deacons in the church had been known to rob the mails, and use the money to build meeting houses, etc. I felt sure such cases must be rare, but he, in his business, knew a great deal better than I, and as I pondered the matter silently, praying that God would give him a better view of Christians and Christianity, since I seemed unable to do so, the engine stopped suddenly. If God stopped the engine in answer to my prayer I did not know it, but thought it must be noon, as did the girls in their offices and rooms. Our conversation was in my private office, and as we were not through, I at first thought I would leave him there until I was through with the exercises. He was a skeptic, and would not care to come to prayers. Do you see how hopelessly I was blundering, and how small was my faith, when God had stopped the engine just on purpose, to help me? I finally did think best to ask him to join us and gave him a book of the "Gospel Hymns". It was 20 minutes to 12, instead of 10, and the engineer had been obliged to stop to lace a belt, or something of that kind. As the girls had commenced singing, it was a little embarrassing, but I finally decided, we would sing several pieces to fill up the interval. Even then, I could see no providence in it, and after the service (which, in my want of faith, I kept thinking must have been annoying to him), I asked him to

go home with me to dinner. As soon as we were in the open air, he commenced, to my surprise, making all sorts of inquiries about that little "meeting".

"Why, Mr. Root, I should be a good man, if I could hear such hymns as those every day. I know those girls are honest. Who got up that 'prayer meeting'?"

Some how, every body persists in calling it a "prayer meeting".

"It was one of the girls you saw, who got up the meeting, and it was as unexpected to me, as to you."

"Is she a church member?"

"No."

"Why, how did it come?"

"I do not know."

"Does not the Bible say something, somewhere, about the weak things of this earth confounding the mighty?"

"Yes; 'And God hath chosen the weak things of the world to confound the things which are mighty.' " I Cor. I. 27.

"Mr. Root, I do believe in God, and I believe in religion; at least, I believe in the kind you have there among your boys and girls. Why, what a splendid thing that is among a lot of factory hands."

When the thief was caught, he was not a boy that belonged to the Sabbath schools, by any means, but I found there was a saloon next door to the post office, and he told me that there was where the greater part, or all, of your money and mine went to. Very likely that saloon keeper taught that boy how to drink and smoke, and it was that powerful craving for drink and tobacco, that made him rob you and me of our hard earnings. The boy is going to the penitentiary, but the saloon keeper goes on with his business, of getting more boys ready for the penitentiary, and my detective friend told me yesterday, that our Ohio penitentiary was so full, they hadn't any more room to put our boys, and so this one is breathing his life out in a narrow iron cage so dark, that he cannot even see to read the little Bible I gave him. My friend Fred, who is now bright, happy, honest, and free (thank God), once told me that confining a young man even in comfortable quarters and leaving him month after month with nothing to do, was more terrible than any human being could imagine, who had not tried it.

Ye fathers and mothers, in God's name I ask you, shall these saloons go on with their business, without one word of remonstrance from you and me?

Towards the first of July, there was talk again among the hands, that I was going to turn off all that did not stop using tobacco, etc. I told them I had made no decision, as to what I should do, when the 3 months were up. But you have promised, never to bring the matter up again, with the old hands, said they. I told them I certainly had not. It was finally referred to the one who went around with the paper to get them to come up to the noon day service. She insisted that I certainly did tell her I would throw aside the paper, forever, with the old hands, if they would come to the service every noon.

Now I had no thought of binding myself,

for more than the three months, neither had I any thought of bringing the matter up again, but I was galled at the idea of being bound hand and foot, in the matter of tobacco, for all time to come.

"What did you tell the hands when you invited them?"

"I told them you had promised never more to bring it up, if they would come up to the service."

"I never said so, and I won't be bound——" I almost said, and perhaps I did say a part of it, but conscience stopped me, and suggested to wait awhile, and pray over the matter a little. After a little, said I,

"But if I am bound, they are also bound to come to the service, by the conditions you made with them."

"I suppose they are."

The approving voice of conscience told me at once, I had done right. If we expect and want God to guide us, my friends, we must see to it that we are well "halter broke". The noon-day prayers, you will see, stand over us all, as a sort of witness of the promises we have each made, of good behavior.

And God said, This is the token of the covenant which I make between me and you, and every living creature that is with you, for perpetual generations:

I do set my bow in the cloud, and it shall be for a token of a covenant between me and the earth.

And it shall come to pass, when I bring a cloud over the earth, that the bow shall be seen in the cloud:—Gen. ix. 12–14.

If, during the day, I am tempted to get angry and scold, the thought of the noon prayers hangs over me, like the rainbow in the heavens; and more than once, have I been silenced by the thought of it. When one has gone astray, and needs reprimanding, the thought comes up that I have been teaching them day by day, at the noon prayers "forgive our debts as we forgive our debtors".

Lest some of you get the idea that I have decided to use no firmness at all, I will mention that, before the old hands. I stated that I could not feel it right to allow any one to learn to use tobacco while in my employ, and, if I am correct, all assented to this. All new comers are given the paper to read over, and are told, they can only have places on these conditions. All have agreed there shall be no smoking on or about the premises. I have only discharged one for breaking his promise, and this because he did it persistently and deliberately. Some have been suspended for a week or a month, for swearing and the like, but they all seem glad to get back to their home again, and I am sure I am always glad to welcome them back.

A word now in regard to answers to prayer: The one who first suggested the noon service, when questioned, said she did not originate the idea; the man where she boarded, who is a Christian, suggested it. Upon inquiry, it transpired that he did not originate it either. He heard some one on the street suggest that I should put away my rules and call all hands together for prayers every noon. Of course, the idea, as he presented it, for *me* to undertake, would have been a failure; perhaps because I lack the tact and spirit to call people together in that way. Now, mark you:—God moved this

friend—perhaps he may see these lines, and, if so, I want to thank him, too—God moved this man to give utterance to that thought. As it was town talk, and I was having another "raking over the coals," this man mentioned it at the dinner table. This one of the hands who had their welfare, all of them, at heart, thought of the suggestion when she came in that morning as they were all in a state of demoralization. God ordered that she and I should misunderstand each other, or I would never have consented. She, through God's guidance (perhaps unconsciously) swayed the whole of them right about, as you often see a swarm of bees turn suddenly and wheel back to their hives. Three months after, when I had seen the good of the service, I found that God had so ordered events that I could not, in honor, even if I thought best, stop the use of tobacco among my *old* hands. Was there not far more wisdom in it all, than I or any other single person, probably, possessed? Does not God interest himself with all these little trifling accidents? Be careful how you decide. Who was it that said,

"But even the very hairs of your head are numbered"?—LUKE XII. 7.

Now do you see how the opening text comes out?

"In all thy ways acknowledge him, and he shall direct thy paths."—PROV. III. 6.

Look out that you do not make a mistake here. This promise, or these promises, are only for those who are doing the best they can—those who are not only hard at *work*, but hard at *praying*, as well. If your cause is one for humanity, and not a selfish one, and you keep praying, God will answer you, but you must have faith to accept the answer when it comes. In what I have told you, God gave me a great deal more than I asked for, but at every step, I stumbled and did not see his hand in it until afterward. I had faith enough to allow him to lead, and that was all.

"Commit thy way unto the Lord; trust also in him, and he shall bring it to pass."—PS. XXXVII. 5.

Now, as God in his infinite wisdom has seen fit to take this matter into his own hands, to him I shall pray unceasingly that he will, in his own good time, so order it, that the money sent this institution be not used to foster bad habits. I will look after the *new* hands that come, but into his hands I intrust the old employees.

In regard to praying for money: Money has come to us, in answer to prayer, not only from across the ocean, but clear from New Zealand, and from other places nearly as remote. Of course, God moved the hearts of these friends to send it long before the prayer was uttered, but for all that, it came just in time to meet some particular bill or want. Many copies of GLEANINGS have been sent to missionaries, I presume just on account of these Home Papers, and, through them, bee culture has been introduced and then orders have come. Suppose my boys should use this money to break the Sabbath or to learn to smoke, or should invest it in billiard balls. Would God be as likely to answer my prayers, as if I wanted it, and used it, in scattering Bibles, educating young men for

missionaries to foreign lands, helping widows, and assisting those who were just on the eve of going to the poorhouse? Suppose my girls were using the money I pay them Saturday nights, to deck themselves in finery for the club dances, or in dressing in silks and jewelry beyond their means or stations in life. Would God send the money as freely as he would should I talk to these girls and tell them this is a religious institution, that the money came in answer to prayer, and that, unless I look to it (as it is for God's work), it would stop coming?

I have no doubt at all, my friends, but that God will send us all the money we can take care of, if we will use it all in such a way that it will do good and not evil. You do not need to ask the people for it; you do not need to beg for customers, or to offer inducements to people to get them to trade with you in preference to somebody else. Be glad to see others get a share of the business, and to see them thrive; help those who are your rivals, and then ask God to send enough business for you both, and he will do it. God wants laborers by the thousands; and if you have not anything to do it is your own fault, because you have not asked him and then complied with his conditions.

Praying that these words uttered in weakness may be blessed to you all; thanking you for the support and encouragement you have given me in the year past, and trusting in Him who, through you, will take care of and support GLEANINGS in the year to come, I bid you all adieu for this the last number of the year. May his blessing rest over us all! Let us close with the first verse and chorus of No. 94, *Gospel Hymns*.

"Come, every soul by sin oppressed,
There's mercy with the Lord,
And he will surely give you rest
By trusting in his word.

Chorus—

Only trust him, only trust him,
Only trust him now;
He will save you, he will save you,
He will save you now."

P. S.—The tobacco store, failing to pay expenses, has moved away and carried the painted Indian, who had a bundle of cigars in his hand, with it. Before the proprietor left, his boy begged hard for a situation with us, and promised to sign and keep all my rules, as have many, many others whom I have been obliged, much against my will, to turn away, because I can not, as yet, take care of so many.

Boys' Department.

PLEASE send me a package of the Simpson and spider honey plants. Your "A B C of Bee Culture" came to hand, and I am very well satisfied. It is worth three times the money. Your GLEANINGS IN BEE CULTURE is "boss." May you ever thrive, and may your shadow never grow less! From a A B C scholar of late, but a bee-keeper of twelve years.
N. E. COTTRELL.

Fayette, Fulton Co., O., Nov. 12, 1879.

I am an old man, full of "fid-fads," standing, month open, waiting for the spider plants. Please excuse me for this time. One of your boys, father Rotor, only 67. You must be a very old man. Love to father and mother, and all the boys and clerks.

EDWARD TUNNICLIFF.

Kewanee, Henry Co., Ill., Nov. 14, 1879.

Well, I declare! boys, I have "put my foot in it" now, for sure. I have gone and put an old man among you, and got him right next in the class to a boy only twelve years old. He talks so good-naturedly and friendly, and wants the honey plants, too; is it any wonder? May God bless you both, my friends, and your honey plants too! It does old men and boys both good to get together sometimes, and if we are obedient children to the great Father who is above all, we shall certainly have love, charity, and sympathy for each other.

Our bees are not doing even *nothing*! but we transferred a colony in September, and I am feeding them on brown sugar. Do you think it is as good as the white? I do not know whether they have a queen or not; I have never looked. In fact, I have not seen a live queen yet, in all my experience (?) with bees. Unless we get a "fort-power saw" this winter, the bees, I think, will stand a poor chance on this place. I can't stand it to make hives with the hand-saw and plane! I made five this year.

D. S. BETHUNE.

Snyder, Ashley Co., Ark., Oct. 16, 1879.

Now, friend B., I believe I would keep on making hives by hand until I had opened a hive and seen a "live queen," at least. May be you won't need a great many hives, if you do not use those you have any better than that. Brown sugar is perfectly safe for feeding in warm weather, when bees can fly, but is not safe for winter stores in cold climates.

Here is my report: I commenced last spring, buying 2 swarms for \$4.00, and increased to 4. I also caught 1 swarm that flew over our farm. I did not take any surplus honey this year, because 3 swarms are young, and I put them in the story and a half hive, and thought if they got enough to winter on I would be satisfied. I weighed them about 2 weeks ago, and found the first swarm weighed 62 lb.; the swarm I caught, 53 lb.; and the last swarm 41 lb. I was going to put in chaff cushions, and found the combs built so crooked that I could not get them in. I have filled-d the $\frac{1}{2}$ story full of chaff, and intend to cover them up with straw for winter.

WHAT TO DO WITH A QUEENLESS STOCK IN DEC.

I believe I have got one swarm that is queenless, but I don't know certainly. They haven't killed their dr. nes yet, and it looks to me as if they were robbing, for I have seen the bees clinch each other, and roll around, and there are always a great many bees flying around the hive. If they are as I say, what would you do with them? One of your A B C scholars, 15 years old. Good by, Uncle, for this time.
E. Wilson, N. Y., Nov. 13, '79. WARREN A. BUSH.

In the first place, my young friend, I would have tried the combs while they were being built, to see if they would lift out, and then, if they were waving too much, I would have bent them straight. As it is, I think there will be less trouble in taking them out than you imagine. If those heavy colonies are very full of bees, it may be well enough to leave out the division boards, but I should prefer to have them in. The first day when it is warm enough so that the snow is thawing, I would fix them. Smoke them to keep them from flying out, and then find out which comb is the straightest. Choose one outside of the cluster of bees, if you can, and then gently slide the others away from it. In the same way, see to the queenless hive, and if as you suspect, unite it with the others, saving the combs for new colonies next year, or for table use, if you choose. If the honey is nice enough. If the colony should be full of bees and stores, unite them and give them some brood in the spring, as I have explained before.

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May, July, and Aug. D S Given, May. J Van Dusen & Sons, June to Aug. and Dec.

Bees. E. W. Hale, Jan. to Oct. J. C. & H. P. Sayles, Jan. to Aug. G. Grimm, Jan. to Apr. Aug. and Sept. R Stehle, Jan. Feb. and Aug. G B Peters, Jan. and Feb. S D McLean & Son, Feb. to July. Mrs. Capehart, Feb. and Mar. H Hoop, Feb. to June. J Oatman & Sons, Feb. to May. C C Vaughan, Feb. to Apr. M T Rowe, Feb. J Hoffman, Mar. and Apr. J R Landes, Mar. to July, and Sept. Ch. Dadant & Son, Mar. to Sept. P L Viallon, Mar. to Aug. D A Pike, Mar. to May. L C Axtell, Mar. and Apr. W W Cary, Mar. to Dec. E A Gastman, Apr. June and Sept. H H Brown, Apr. to Sept. J M Brooks & Bro. Apr. to Sept. Rev. A Salisbury & Hayes, Apr. to Dec. B B Barnum, May. A W Vaniman, June. F L Wright, June. G H Goodyear, June. G D Adair, June. F J Farr, June. G W Gates, June. I S Hughes, June. S A Dyke, June. L W Van Kirk, June. J E Vanmeter, June, Sept. and Oct. S Y Orr, June. E M Hayhurst, June to Sept. J P Sterritt, July to Aug. J H Martin, July to Sept. C W & A H K Blood, July to Dec. S Valentine, July. H R Boardman, Aug. to Oct. Y S Hall, Aug. and Sept. R Quinn, Sept. and Oct. W A Eddy, Sept. O Foster, Oct.

Comb Fdn. Machines. J. C. & H. P. Sayles, Jan. to Aug.

Empty Combs. F. T. Nunn, Apr. W. S. Boyd, May and June. A Fahnestock, July.

Engraving. Stillman & Co., year.

Extractors. M. Richardson, Jan. to March. Valentine & Son, Jan. to Apr. C F Muth, Feb. to Apr. June, Aug. Oct. and Dec. Everett Bro's, Mar. May, to Sept. R R Murphy, May and June.

Fastenings for Hives. L. C. Axtell, May.

Ferns. R. Morgan, Nov.

Florida Moss. G. Wolfe, Mar.

Foot-power Saws. W. F. & Jno. Barns, year.

For Sale. "Chas." care Gleanings, Jan. W. S. Lunt, Mar.

Fruit Trees. R. S. Johnson, Jan. to Mar.

Glass Cutter. H. M. Moyer, July and Aug.

Grape Sugar. Davenport Glucose Co., Jan. to July.

Hives. M. Richardson, Jan. to Mar. F A Salisbury, Jan. to May. R R Murphy, Jan. to Apr. Valentine & Son, Jan. to Apr. Lewis & Parks, Jan. to June. I L Parker, Jan. and Feb. F A Snell, Jan. to July. J H Nellis, Jan. to May. C McQueen, Jan. M L Hudson, Jan. A A Fradenburg, Feb. to June. G W Simmons, Feb. J Oatman & Sons, Feb. to May. C F Muth, Feb. to Apr. June Aug Oct and Dec. C H Dean, Mar. and Apr. T J Elliott, Mar. S Valentine, Mar. to May. Everett Bro's, Mar. May to Sept. D Royse, Mar. to May. W D Parker, Apr. to June. E A Gastman, Apr. E Thew, Apr. and May. W T Falconer, Apr. and May. H Scovell, Apr. to Dec. Newman & Baker, Apr. to June. B B Barnum, May. Nichols & Elkins, May to Oct. A Fahnestock, July. P L Viallon, Sept. to Dec.

Honey Boxes. J E Moore, Apr. C R Isham, May. R R Murphy, May and June.

Honey Jars. C F Muth, Feb. to Apr. June Aug Oct and Dec. M H Tweed, June.

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Horse Book. B J Kendall, Aug to Dec.

Imported Queens. Dr J P H Brown, year. Valentine & Son, Jan. to Apr. D Tremontani, Jan. to June. C W & A H K Blood, July to Dec. Miss M Andrews, Aug and Sept.

Organs. Burdette Organ Co, July to Dec.

Periodicals. A J King & Co, year. J Vick, Jan. Feb. Apr. to June. T G Newman & Son, year. A C Nellis, Jan. E H Wynkoop, Feb. Mar. and Dec. J H Nellis, Feb. to Apr. May June Nov. and Dec. Bee-keeper's Guide, Feb. Mar. Purdy, Mar. Dec. G M Doolittle Nov. Seedtime and Harvest, Dec.

Plants. G Wolfe, Mar. J W Manning, May.

Poultry.—H E Spencer, Jan. J R Landes, Mar. to July, Sept. Valentine & Son, Jan. to Apr. C W Canfield, Apr. and May. S Greenawalt, May. E H Nichols, Dec.

Queens. E W Hale, year. J P H Brown year. J C & H P Sayles, Jan. to Aug. R Stehle, Jan. to June, Aug. Valentine & Son, Jan. to Apr. H H Brown, year. E M Hayhurst, year. J M O Taylor, year. P L Viallon, year. J Oatman & Sons, Feb. to Dec. S D McLean & Son, Feb. to July. A F Moon, Feb. and Mar. C C Vaughan, Feb. to Apr. J Hoffman, Mar. J E Walcher, Mar. to Aug. S M Hitchcock & Co, Mar. to Aug. J B Keeler, Mar. to Aug. J

R Landes, Mar to July. C Dadant & Son, Mar to Sept. M A Buell, Mar. S Valentine, Mar to May, and July. D A Pike, Mar. to May. Miss M Andrews, Apr. to July. E A Gastman, Apr. J Mattoon, Apr., June, and July. Newman & Baker, Apr. to July. Miller & Hollam, Apr. to Dec. D A McCord, Apr. to Sept. J T Wilson, Apr. to Dec. Rev A Salisbury & Hayes, Apr. to Sept. A F Stauffer, Apr., May, and July. H A King, May. S Greenawalt, May to July. A Johnson, May to Oct. S D Moore, May to Oct. B B Barnum, May, July, and Aug. S W Salisbury, May, July, and Aug. H S Elkins, May to Oct. F L Wright, June and July. King & White, June, Aug., to Dec. W Z Hutchinson, July to Oct. D S Given, July and Aug. H Smith, July and Aug. J L Bowers, July to Dec. J P Sterritt, July and Aug. I Michener, July and Aug. J H Martin, July to Sept. T G McGaw, July to Sept. H Alley, July to Sept. A W Cheney, Aug. and Sept. O Sowthgate, Aug. to Oct. A L Klar, Aug. and Sept. J A Ward, Aug. H R Boardman, Aug. and Sept. Y S Hall, Aug. and Sept. E B Plunket, Sept. L A Best, Oct. F J Wardell, Dec.

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Sawing Machine. W. Giles, Apr. and Dec.

Sections. M. Richardson, Jan to Mar. R. Stehle, Jan. Feb. Apr. May and Aug. F A Salisbury, Jan to Mar. R R Murphy, Jan. and Feb. A E Manum, Jan. Feb. and Dec. Valentine & Son, Jan. to Apr. Lewis & Parks, Jan. to June, Sept. J Omtan & Sons, Feb. to May. F L Furbish, Mar. and May. Everett Bros., Mar. May to Sept. W D Parker, Apr. to June. E A Gastman, Apr. E Thew, Apr. and May. W T Falconer, Apr. and May. S D Buell & Co. May.

Seeds. C F Lane, Feb. C F Muth, Feb. to April, June, Aug., Oct., and Dec.

Smokers. Bingham & Hetherington, Feb. to May. T F Bingham, Mar. to May, July. L C Root, Apr., May, July, and Aug. H Scovell, May to Aug.

Supplies. J P H Brown, year. J C & H P Sayles, Jan. to Aug. Valentine & Sons, Jan. to Apr. C F Muth, Feb. to Apr., June, Aug., Oct., and Dec. C Dadant & Son, Mar. to Sept. M A Buell, Mar. S Valentine, Mar. to May. P L Viallon, Mar. to Aug. D Royse, Mar. to May. E Thew, Apr. and May. H H Brown, Apr. to Sept. J H Nellis, Apr. W D Wright, Apr. F A Salisbury, Apr. and May. D T Davis, Apr. L C Root, April, May, July and Aug. Rev A Salisbury & Hayes, Apr. to Sept. C W & A H K Blood, July to Dec. A E Manum, Dec.

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We have to-day, Nov. 29, 4373 subscribers.

DURING the year ending Nov. 1st, 1879, we have sold 2769 Simplicity hives; 863 1½ story hives; 133,349 broad frames for sections; 45,311 brood frames; 408,978 sections, and 10,281 lb. of fdn. The regular Simplicity hive seems to be most in favor, as you will see from the above.

A BROTHER, in the December "Magazine," says his bees will not eat grape-sugar candy. First try an ounce or two, my friends, as I advised, right in the cluster, under the cushion; if they don't eat it, you have made a very small investment, and need not invest further.

It will not pay, my friends, to order small quantities of grape sugar. The cost of 10, 15, or even 50 lb., by freight, will often be as much as you would have to pay for coffee sugar at your groceries, and I hope no one has got the idea, from what I have written, that grape sugar is worth as much as coffee sugar, pound for pound, for feeding bees. If you order small quantities by express, the case is still worse; and I know of no way in the world by which you can get or send away wax, grape sugar, candy, and the like, long distances, by mail or express, as they are often ordered, without charges amounting to as much as, or more than, the articles are worth.

Did you ever! Frank Benton is going to start right away for the Island of Cyprus in the Mediterranean Sea, just on purpose to raise queens to send back to America. If they have not got the best in the world there, he will go to Java, Smyrna, Dalmatia (just think of it), and other places I can't remember, and tell us all about the bees and folks, through the GLEANINGS for 1880. In fact he is regularly engaged as a contributor to tell us all about his travels. Our old friend, D. A. Jones, of Beeton, Canada, goes with him, and bears all his expenses, and pays him a salary besides. You see, boys, Mr. Benton, besides being a good bee-keeper, is a graduate of the Michigan Agricultural College, speaks French, German, Italian, and can talk with all these foreigners almost as well as with you and me (I know how he can talk, for he has just spent Thanksgiving with us), and that is how an education pays.





